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A Checklist and Key to the Homalopsid Snakes (Reptilia, Squamata, Serpentes), with the Description of New Genera

John C. Murphy
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Cover: *Enhydris jagorii* Peters from the Bung Ka Lo wetland in Thailand's Central Plain. This is the only confirmed extant population of this snake. *Enhydris jagorii* inhabits a marshy wetland with a shallow central lake bordered by rice paddy. Photo by J.C.M.

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A Checklist and Key to the Homalopsid Snakes (Reptilia, Squamata, Serpentes), with the Description of New Genera

John C. Murphy and Harold K. Voris

Abstract

The colubroid snake family Homalopsidae contained 10 genera and 34 species of rear-fanged semi-aquatic and aquatic snakes in 1970 with the publication of Gyi's monograph. In 2007 Murphy had updated Gyi's work and the family held the same 10 genera with 37 species plus two genera with uncertain status (*Anoplohydrus*, *Brachyorrhos*). Molecular studies published in the first decade of the 21st century demonstrated that while the Homalopsidae is monophyletic, the species-rich genus *Enhydris* is polyphyletic. Molecular analysis also found *Brachyorrhos* to be the most basal member of the clade, confirming an earlier hypothesis that it was a fangless homalopsid. Subsequently, two other fangless genera of homalopsids were discovered. We revalidate the genera: *Homalophis* Peters, *Hypsiscopus* Fitzinger, *Miralia* Reuss, *Phytolopsis* Gray, and *Raclitia* Gray. Also, we describe five new genera for species lacking available names: *Gyiophis*, *Kualatahan*, *Mintonophis*, *Sumatranus*, and *Subsessor*. The new arrangement for homalopsid names resolves the problem of the formerly polyphyletic genus *Enhydris*. For all species, we provide a synonymy, information on types and type localities, a diagnosis, as well as remarks on taxonomic and nomenclatural problems and a dichotomous key. Recent evidence suggests homalopsids show high levels of endemism and cryptic speciation.

Key Words: aquatic snakes; mud snakes; Homalopsidae; terrestrial–aquatic transition; geographic distribution; taxonomy.

Historical Background

Since Bonaparte (1845) established the name Homalopsina, the composition of this taxon has been controversial. Jan (1861, 1863) summarized the group as a cosmopolitan, heterogeneous family of aquatic, terrestrial, and fossorial snakes. Later, he erected the Potamophilidae to include aquatic snakes that are now recognized as members of the homalopsids, natricids, and dipsadids (Jan, 1864). Günther (1864) established the Homalopsidae, with eight genera (*Cantoria*, *Cerberus*, *Ferania*, *Fordonia*, *Herpeton*, *Hipistes*, *Homalopsis*, *Hypsirhina*), noting the species shared valvular nostrils and a tendency to have fragmented head shields.

Nicholson (1874) considered homalopsids to be transitional between the Natricinae and the Hydrophiidae, and proposed that the acrochordids were derived from homalopsids. Cope (1886) defined the family based on the presence of ventral vertebral processes (hypapophyses) that extend the length of the vertebral column. His cosmopolitan family contained more than 30 genera. Boulenger (1890, 1893) modified Günther's (1864) arrangement by adding the genera *Gerarda* and *Myron* to the other eight genera, and assigned the group to a subfamily of the Colubridae. This arrangement was continued by Smith (1943) and Gyi (1970).

Changes in the phylogenetic position of the Homalopsinae continued in the 20th century. Dowling (1974) and Dowling and Duellman (1978) considered the clade a tribe of the Natricinae (family Colubridae). An association between homalopsids and vipers was proposed by Knight and Mindell (1994) and Underwood (1999).

In one of the first molecular studies on snakes, Heise et al. (1995) found homalopsids to be basal to caenophidians. Kraus and Brown (1998) analyzed mitochondrial DNA (mtDNA) and suggested homalopsids were the sister to the Southeast Asian Pareatidae.

More recent molecular phylogenetic analyses established the Homalopsidae as a family distinct from the Colubridae, and supported its monophyly (e.g., Voris et al., 2002; Lawson et al., 2005; Alfaro et al., 2008).

Other studies supported the Homalopsidae as the sister group to colubroids and elapoids (Kelly et al., 2003; Vidal & Hedges, 2005, 2009; Vidal et al., 2007; Wiens et al., 2008). Vidal et al. (2007) suggested the Homalopsidae be placed in the superfamily Homalopsoidea. Zaher et al. (2009) proposed the Endoglyptodonta (their clade 5) as a monophyletic group for the vipers, homalopsids, elapoids, and colubroids based on shared sulcate maxillary dentition. These recent molecular analyses suggested the crown homalopsids are of early Miocene origin (Alfaro et al., 2008) and that the family originated about 53.38 MYA (Pyron & Burbrink, 2012).

Gyi's (1970) classification placed 22 of the 34 homalopsid species in the genus *Enhydris* Sonnini and Latreille. He indicated that *Enhydris* consisted of species with large head shields, smooth scales, nasal scales in contact behind the rostral, single or double internasal posterior to the nasals, 19–33 rows of dorsal scales at mid-body, 105–172 ventrals, and 23–92 subcaudals. Based on scalation and color pattern, Gyi (1970) sorted the 22 *Enhydris* species into nine taxonomic groups. *Enhydris* (*sensu* Gyi, 1970) are associated with freshwater and saltwater habitats and mud substrates. Two *Enhydris* species were considered to be geographically widespread (*E. enhydris* and *E. plumbea*), while the other species have ranges restricted to islands, river basins, and areas of coast. Murphy (2007a) updated and expanded Gyi's (1970) monograph (recognizing 10 genera with 37 species) and summarized available morphological, ecological, and biogeographic information. He revised Gyi's (1970) *Enhydris* to include three new species (*E. chanardi*, *E. gyii*, *E. vorisi*), placed *Hypsirhina smithii* Boulenger in the synonymy of *Hypsirhina jagorii* Peters, and removed *Hypsirhina enhydris subtaeniata* Bourret from the synonymy of *Hypsirhina jagorii*, elevating *Enhydris subtaeniata* to species level.

Molecular phylogenetic studies using mtDNA (Voris et al., 2002) and a combination of mitochondrial and nuclear sequence data (Alfaro et al., 2008) demonstrated *Enhydris* as defined by Gyi (1970) to be polyphyletic, containing members of at least five distinct lineages in the Homalopsidae. Alfaro et al. (2008) also identified the *Enhydris* clade as comprising five species: *E. chinensis*, *E. enhydris*, *E. innominata*, *E. longicauda*, and *E. subtaeniata* (their Clade B). Karns et al. (2010a) examined the *Enhydris* clade and expanded it to include *E. chanardi* and *E. bennettii* based upon morphology. Other species previously included in *Enhydris* were separated into four other lineages. *Enhydris bocourti* was the sister to *Erpeton*, *E. plumbea* + *E. matannensis* + an undescribed Sulawesi species; together these species formed the sister clade to all other homalopsids. *Enhydris punctatus* was the sister to a clade that contained most of the species adapted to salt water as well as an Australasian clade containing *Enhydris polylepis* and *Myron richardsonii* as sister taxa.

Following this evidence, Murphy (2011) suggested the morphology of these two species and that of *Cantoria annulata* and *Heurnia ventromaculata* merited recognition of an Australasian clade, and he updated the nomenclature for Australopapuan homalopsids. *Enhydris polylepis* was reassigned to the genus *Pseudoferania* Ogilby, *Cantoria annulata* (de Jong) was placed in the new genus *Djokoiskandarus*, and two new species of *Myron* were described. This arrangement was also weakly supported by the molecular work of Zaher et al. (2012) and strongly supported by Pyron et al. (2013).

In the most taxonomically complete molecular study on squamates done to date, Pyron et al. (2013) recovered a clade containing Colubridae, Elapidae, Homalopsidae, and Lamprophiidae. Also, the homalopsids were weakly supported as the sister to Elapidae + Lamprophiidae, contrary to previous studies that found strong support for the relationship (Kelly et al., 2009).

The inclusion of molecular sequences (Kumar et al., 2012) from southwest India's *Enhydris dussumierii* recovered its sister as *E. chinensis*. Given this evidence, *E. chinensis* and the morphologically similar *E. bennettii* were removed from the *Enhydris* clade of Karns et al. (2010a) and placed in the genus *Myrrophis*. Additionally, Kumar et al. (2012) resurrected *Ferania* for *E. sieboldii*, and *Dieurostus* for *E. dussumierii*.

Other nomenclatural changes occurred in the genera *Cerberus* and *Homalopsis*. Gyi (1970) recognized three species of *Cerberus*, but Murphy et al. (2012b) revised the genus to include five species, revalidating *C. schneiderii* (Schlegel) and describing *C. dunsoni*. Gyi (1970) recognized only a single species of *Homalopsis*, *H. buccata*. However, several papers (Stuart et al., 2006; Murphy, 2007a), including a generic revision (Murphy et al., 2012c), revalidated *H. hardwickii* Gray, *H. nigroventralis* Deuve, *H. semizonata* Blyth, and described *H. mereljcoxi*, increasing the species of *Homalopsis* to five.

McDowell (1987, p. 35) wrote, " ... the terrestrial *Brachyorrhos*, without rear fangs but similar hemipenis, vertebrae and skull, and live bearing, probably belongs here [in the Homalopsidae]." Using molecular data, *Brachyorrhos* was shown to be the sister to all other homalopsid genera sampled and was shown to contain at least four species (Murphy, 2012; Murphy et al., 2012a). During the examination of *Brachyorrhos* specimens, the West Papuan snake genus *Calamophis* Meyer, which had been previously synonymized under *Brachyorrhos*, was found to be distinct and contained an additional four species (Murphy, 2012; Murphy et al., 2012a). Murphy and Voris (2013) described a third genus of fangless homalopsids from Sumatra, *Karnsophis*, which had been previously confused with *Brachyorrhos*.

What Are Homalopsid Snakes?

Several molecular studies (e.g., Voris et al., 2002; Alfaro et al., 2008; Zaher et al., 2012; Pyron et al., 2013) have supported a conclusion that the family is monophyletic. Many authors discussing homalopsids have attempted to define the family by listing suites of shared morphological traits, but many of the characters have exceptions upon close examination. For example, "head not distinct from neck" (Gyi, 1970) is not applicable to *Cerberus* or *Homalopsis*, and "Eye smaller than eye-mouth distance" (Boulenger, 1893; Smith, 1943; Gyi, 1970) does not apply to *Erpeton*. For many decades the presence of grooved rear fangs was shared among all known homalopsids, but the recent addition of three genera without fangs has eliminated the usefulness of this character (Murphy et al., 2011). This is not surprising given that several molecular studies (Kelly et al., 2003; Vidal & Hedges, 2005, 2009; Vidal et al., 2007; Wiens et al., 2008; Pyron et al., 2013) have shown the homalopsids to be the sister group to several modern groups (e.g., Colubridae, Elapidae, and Lamprophiidae). The ancestral forms of these groups shared a great deal of the genomic material that is the likely basis for the homoplasy that is so apparent among the extant species of these groups.

Following is a list of traits that, to the best of our knowledge, are shared by known homalopsids. It is unfortunate that not all of these characters have been verified for all species or genera because many taxa are known from only one or a very few specimens:

- Hypapophyses present the length of vertebral column
- Hemipenis forked with distal end finely calyculate, with shallow cups; spines present and variable
- Tracheal lung
- Crescent-shaped valvular nare
- Shallow rostral notch
- Elliptical pupil
- Subcaudals and cloacal plate divided
- Viviparous with a placenta-like connection to the female's circulatory system
- An Asian–Australopapuan distribution

Generic Designations, Why So Many Genera?

Gyi's (1970) classic revision of the Homalopsinae provides some clues to future nomenclatural problems. He recognized 34 species in 10 genera based on phenotypic similarities. Sixty-five percent of the species (22 of 34) were placed in *Enhydris* and it was partitioned into nine species groups. This arrangement implies one of two phylogenetic scenarios. Either the nine species of *Enhydris* were the product of a single tight radiation, or the genus is polyphyletic. It is not surprising that virtually all molecular phylogenetic studies that include the family (e.g., Voris et al., 2002; Alfaro et al.,

TABLE 1. Scientific names used in Gyi (1970) and Murphy (2007a) and geographic distribution by region. Regional definitions and codes: (1) Sahul—Australia, Papua New Guinea, West Papua New Guinea (Indonesia), Aru Islands; (2) eastern Lesser Sunda Islands (edge of Sahul shelf to Webber's Line)—Halmahera, Ceram, Buru, Tanimbar, Palau (Micronesia); (3) western Lesser Sunda Islands (Webber's Line to Wallace's Line)—Ambon, Lombok, Timor, Sulawesi, etc.; (4) Philippines (not including Palawan); (5) Greater Sunda Islands—Sumatra, Java, Borneo (including Bali and Palawan); (6) Indochina (less Myanmar)—Cambodia, Laos, Thailand, Vietnam, peninsular Malaysia; (7) Southeast China—Yunnan, Guangxi, Guangdong, Hainan, Fujian, Xianggang (Hong Kong), Taiwan; (8) Myanmar—Myanmar, Andaman and Nicobar Islands; (9) South Asia—Bangladesh, India, Nepal, Pakistan, Sri Lanka.

Checklist	Gyi (1970)	Murphy (2007a)	Geographic distribution by region
Fangless homalopsids			
Brachyorrhos albus		*Brachyorrhos albus*	Eastern Lesser Sunda Islands
Brachyorrhos gastrotaenius			Eastern Lesser Sunda Islands
Brachyorrhos raffrayi			Eastern Lesser Sunda Islands
Brachyorrhos wallacei			Eastern Lesser Sunda Islands
Calamophis jobiensis			Sahul
Calamophis katesandersae			Sahul
Calamophis ruuddelangi			Sahul
Calamophis sharonbrooksae			Sahul
Karnsophis siantaris			Greater Sunda Islands
Fanged homalopsids			
Bitia hydroides	*Bitia hydroides*	*Bitia hydroides*	Greater Sunda Islands, Indochina
Cantoria violacea	*Cantoria violacea*	*Cantoria violacea*	Greater Sunda Islands, Indochina
Cerberus australis	*Cerberus australis*	*Cerberus australis*	Sahul
Cerberus dunsoni			Eastern Lesser Sunda Islands
Cerberus microlepis	*Cerberus microlepis*	*Cerberus microlepis*	Philippines
Cerberus rynchops	*Cerberus rynchops*	*Cerberus rynchops*	South Asia
Cerberus schneiderii	*Cerberus rynchops*	*Cerberus rynchops*	Philippines, Greater Sunda Islands, Indochina
Dieurostus dussumierii	*Enhydris dussumierii*	*Enhydris dussumierii*	South Asia
Djokoiskandarus annulatus	*Cantoria annulata*	*Cantoria annulata*	Sahul
Enhydris chanardi		*Enhydris chanardi*	Indochina
Enhydris enhydris	*Enhydris enhydris*	*Enhydris enhydris*	Widespread: regions 3,5,6,8,9
Enhydris innominata	*Enhydris innominata*	*Enhydris innominata*	Indochina
Enhydris jagorii	*Enhydris jagorii*	*Enhydris jagorii*	Indochina
Enhydris longicauda	*Enhydris longicauda*	*Enhydris longicauda*	Indochina
Enhydris subtaeniata		*Enhydris subtaeniata*	Indochina
Erpeton tentaculatus	*Erpeton tentaculatus*	*Erpeton tentaculatus*	Indochina
Ferania sieboldii	*Enhydris sieboldii*	*Enhydris sieboldii*	South Asia
Fordonia leucobalia	*Fordonia leucobalia*	*Fordonia leucobalia*	Widespread: regions 1,2,3,5,6,9
Gerarda prevostiana	*Gerarda prevostiana*	*Gerarda prevostiana*	Widespread: regions 4,5,6,8,9
Gyiophis maculosa	*Enhydris maculosa*	*Enhydris maculosa*	Myanmar
Gyiophis vorisi		*Enhydris vorisi*	Myanmar
Heurnia ventromaculata	*Heurnia ventromaculata*	*Heurnia ventromaculata*	Sahul
Homalophis doriae	*Enhydris doriae*	*Enhydris doriae*	Greater Sunda Islands
Homalophis gyii		*Enhydris gyii*	Greater Sunda Islands
Homalopsis buccata	*Homalopsis buccata*	*Homalopsis buccata*	Greater Sunda Islands, Indochina
Homalopsis hardwickii			South Asia
Homalopsis mereljcoxi			Indochina
Homalopsis nigroventralis		*Homalopsis nigroventralis*	Indochina
Homalopsis semizonata			Myanmar
Hypsiscopus plumbea	*Enhydris plumbea*	*Enhydris plumbea*	Widespread: regions 5,6,7,8,9
Hypsiscopus matannensis	*Enhydris matannensis*	*Enhydris matannensis*	Western Lesser Sunda Islands
Kualatahan pahangensis	*Enhydris pahangensis*	*Enhydris pahangensis*	Indochina
Mintonophis pakistanicus	*Enhydris pakistanica*	*Enhydris pakistanica*	South Asia
Miralia alternans	*Enhydris alternans*	*Enhydris alternans*	Greater Sunda Islands
Myron karnsi			Greater Sunda Islands
Myron resetari			Sahul
Myron richardsonii	*Myron richardsonii*	*Myron richardsonii*	Sahul
Myrrophis bennettii	*Enhydris bennettii*	*Enhydris bennettii*	Southeast China
Myrrophis chinensis	*Enhydris chinensis*	*Enhydris chinensis*	Indochina, Southeast China
Phytolopsis punctata	*Enhydris punctata*	*Enhydris punctata*	Greater Sunda Islands, Indochina
Pseudoferania polylepis	*Enhydris polylepis*	*Enhydris polylepis*	Sahul
Raclitia indica	*Enhydris indica*	*Enhydris indica*	Indochina
Subsessor bocourti	*Enhydris bocourti*	*Enhydris bocourti*	Indochina
Sumatranus albomaculatus	*Enhydris albomaculatus*	*Enhydris albomaculatus*	Greater Sunda Islands

2008; Zaher et al., 2012; Pyron et al., 2013) have highlighted the polyphyletic nature of *Enhydris*. Pyron et al. (2013, p. 1480) clearly stated " ... the non-monophyly of the genus *Enhydris* is strongly supported (Fig. 23) and should likely be split into multiple genera." Thus, molecular phylogenetic studies provide strong justification for partitioning the polyphyletic genus *Enhydris* into several monophyletic genera and, in several cases, these studies may help define the monophyletic units (e.g., Karns et al., 2010a; Murphy, 2011; Kumar et al., 2012; Pyron et al., 2013).

However, in several cases (*Gyiophis* n. gen, *Kualatahan* n. gen., *Raclitia*) specimens of the new genera or revalidated genera recognized herein are rare (Table 1). Furthermore, no DNA is available and no cladistic analysis based on morphology has been published for these genera. Thus, in these cases we define genera using suites of morphological characters. For an overview of the family see Table 2.

Homalopsidae *Incertae Sedis*

Given the diversity of known members of the Homalopsidae, we suspect that other snakes will eventually be shown to belong to this family. Confirmation awaits further evaluation. *Anoplohydrus aemulans* Werner is known from a single, now-lost specimen from Pudang, District Babongan, Sumatra. Werner's (1909) drawing shows a snake that has a single pair of scales where an internasal(s) and prefrontal(s) should be. He recognized the snake's morphology as similar to other homalopsids, but other authors have continued to recognize it as a Natricinae (Murphy, 2007a). The endemic (Stuebing & Inger, 1999) Borneo genus *Hydrablabes* Boulenger currently assigned to the Natricidae contains two species that are also likely candidates for being homalopsids. They are small, stream-dwelling snakes with 173–196 ventrals, a complete ocular ring containing 7–9 scales, and three pairs of chin shields. The semi-aquatic snake of the Western Ghats (southwest India), *Rhabdops olivaceus* Beddome, is also a good candidate to be a homalopsid, with crescent-shaped nares, 17 rows of dorsal scales, and 202–215 ventrals. The terrestrial, Sulawesi-endemic *Rabdion forsteni* Duméril, Bibron, and Duméril may also be a candidate for the Homalopsidae. Like the fangless homalopsids, it has the nasal scales separated by the rostral, a pointed head, and a large prefrontal that extends to the upper labials.

The objective of this study is to present a revision of the family Homalopsidae, incorporating the most recent morphological and molecular analyses. Fifty-three species in 28 genera (five of which are new) are recognized. Diagnoses are presented for each taxon, as well as remarks on potential taxonomic and nomenclatural problems.

Common Names and Photographs

For common names we have tried to use English names that are most frequently used in the literature. However, as many of these snakes are poorly known, we have applied common names associated with their geography. In a few instances geography confused the common name, and we applied a name based on the epithet or the author of the species.

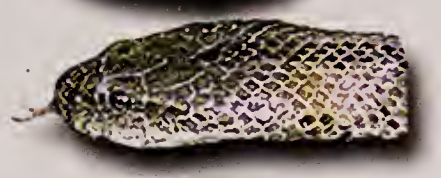
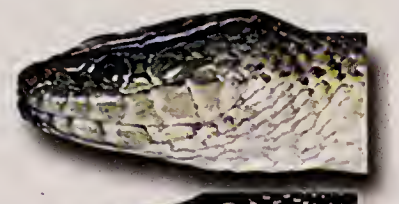
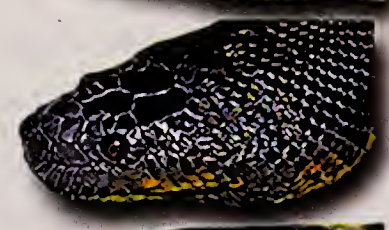
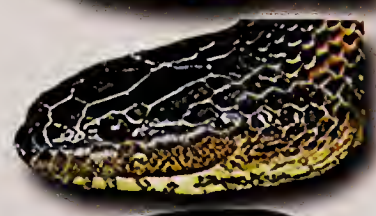
Photographs for most species are provided. Where possible we have a head profile (sometimes just showing scale arrangements just anterior to the eye) and a crown view to show the areas often used for identification. Many of these photos were taken with a Scalar digital microscope which had relatively low resolution and an illumination system that often left an unavoidable reflection of a ring of lights on polished scales, and represents relatively ancient digital photo technology.

Methods

We examined specimens from the collections of the Field Museum of Natural History (FMNH); the Academy of Natural Science in Philadelphia (ANSP); the American Museum of Natural History (AMNH); the Australian Museum (AMS); the Bernice Pauahi Bishop Museum (BPBM); British Museum of Natural History (BMNH); the California Academy of Sciences (CAS); Chulalongkorn Museum of Zoology (CUMZ); the Forschungsinstitut und Naturmuseum, Senckenberg (SMF); the Louisiana State Museum of Zoology (LSUMZ); the Museo Civico di Storia Naturale (MSNG); the Macleay Museum, University of Sydney (MAMU) the Museum and Art Gallery of the Northern Territory (MAGNT); the Museum d'Histoire Naturelle de Lyon (MHNL); the Museum of Comparative Zoology (MCZ); Museum of Zoology, University of Michigan (UMMZ); Nationaal Natuurhistorisch Museum (RMNH.RENA); the National d'Histoire Natural (MNHN); Naturmuseum, Stuttgart (SMNS); Museum Zoologicum Bororienese (MZB), the National Museum of Natural History (USNM); the Naturhistorisches Museum, Augustinergasse (NMBA); Naturhistoriska Riksmuseet (NRM); Naturhistor-

→

TABLE 2. Homalopsid species are grouped based on morphological and molecular work. The **Fangless Indonesian Group** was recently recognized and placed within the Homalopsidae by Murphy et al. (2011). (Photo A *Brachyorrhos raffrayi* by J.C.M.) Alfaro et al. (2008) recognized four clades. Their clade A corresponds with our **Plumbea Group**, containing a highly aquatic undescribed species from Lake Towuti, Sulawesi. (Photo B *Hypsiscopus plumbea* by Daryl R. Karns.) The **South China Group** is linked by similar morphology, and was long considered to be part of *Eulydris*. Kumar et al. (2012) found *Myrrophis chinensis* to be the sister to the southwest Indian *Dieurostus dussumierii* (also previously considered part of *Enhydris*). (Photo C *Myrrophis chinensis* by Steve Mackessy.) The two species in the **Fossorial-Aquatic Group** share similar morphology and geography but remain unconfirmed by molecular studies. (Image D *Miralia alternans* from Jan & Sordelli, 1860–1881.) Similarly, most members of the **South Asian Group** have not been included in molecular studies. The group shares some morphology and geography. (Photo E *Dieurostus dussumierii* by Biju Kumar.) The **Pahang Mud Snake**, *Kualatahan pahangensis*, is of uncertain relationship. It may be allied with the South Asian Group or the Enhydris Group. The **Enhydris Group** is centered in Indochina, they use freshwater habitats, and group membership of all but *Enhydris chanardi* has been supported with molecular and morphological data (Alfaro et al., 2008; Karns et al., 2010a). (Photo F *Enhydris enhydris* by J.C.M.) The **Punctata Group** is centered on the Sunda Shelf and shares similar morphology. Only *Phytolopsis punctata* has been included in molecular studies. (Photo G *Homalophis doriae* by Daryl R. Karns.) The **Saltwater Group** has been well documented with molecular data (Alfaro et al., 2008). (Photo H *Cantoria violacea* by J.C.M.) The **Australasian Group** is well supported by a close genetic relationship between *Pseudoferania* and *Myron* (Alfaro et al., 2008; Kumar et al., 2012; Pyron et al., 2013) and shared morphology and geography with the other members of the group. (Photo I *Pseudoferania polylepis* by J.C.M.) The **Sunda Group** is at best tentative, Alfaro et al. (2008) found a sister relationship between *Erpeton* and *Subsessor bocourti*, while Murphy et al. (2011) found *Erpeton* to be the sister to *Bitia*, and *Subsessor* to be the sister to the *Homalopsis* and *Cerberus* groups; and Kumar et al. recovered *Subsessor* as the sister to *Homalopsis*. (Photo J *Subsessor bocourti* by J.C.M.) The **Homalopsis Group** is linked by similar morphology. (Photo K *Homalopsis mereljcoxi* by J.C.M.) The **Cerberus Group** has three of the five species linked with molecular data (Alfaro et al., 2004) and is strongly supported by Alfaro et al. (2008). (Photo L *Cerberus dunsoni* by J.C.M.)

	Group	Species	Distribution	Example	
Fangless Clade	Fangless Group	*Brachyorrhos albus* *Brachyorrhos gastrotaenius* *Brachyorrhos raffrayi* *Brachyorrhos wallacei* *Calamophis jobiensis* *Calamophis katesandersae* *Calamophis ruuddelangi* *Calamophis sharonbrooksae* *Kamsophis siantaris*			A
	Plumbea Group	*Hypsiscopus plumbea* *Hypsiscopus matannensis* *Lake Towuti sp.*			B
	South China Group	*Myrrophis bennettii* *Myrrophis chinensis*			C
	Fossorial-Aquatic Group	*Miralia altemans* *Raclitia indica*			D
	South Asian Group	*Gyiophis maculosa* *Gyiophis vorisi* *Ferania sieboldii* *Dieurostus dussumierii* *Mintonophis pakistanicus*			E
	Pahang Mud Snake	*Kualatahan pahangensis*		no image	
	Enhydris Group	*Enhydris chanardi* *Enhydris enhydris* *Enhydris innominata* *Enhydris jagorii* *Enhydris longicauda* *Enhydris subtaeniata*			F
	Punctata Group	*Homalophis doriae* *Homalophis gyii* *Phytolopsis punctata*			G
	Saltwater Group	*Bitia hydroides* *Fordonia leucobalia* *Gerarda prevostiana* *Cantoria violacea*			H
	Australasian Group	*Pseudoferania polylepis* *Djokoiskandarus annulaus* *Heumia ventromaculata* *Myron kamsi* *Myron resetari* *Myron richardsonii*			I
	Sunda Group	*Erpeton tentaculatus* *Sumatranus albomaculatus* *Subsessor bocourti*			J
	Homalopsis Group	*Homalopsis buccata* *Homalopsis hardwickii* *Homalopsis mereljcoxi* *Homalopsis nigroventralis* *Homalopsis semizonata*			K
	Cerberus Group	*Cerberus australis* *Cerberus dunsoni* *Cerberus microlepis* *Cerberus rynchops* *Cerberus schneiderii*			L
Fanged Clade					

isches Museum, Burgring (NMW); the Queen Saovabha Memorial Institute, Thai Red Cross Society (QSMI); the Queensland Museum (QM); the Raffles Museum of Zoology (ZRC); the Royal Ontario Museum (ROM); Sabah State Museum (SSM); the South Australia Museum, Adelaide (SAMA); Staatliches Museum für Tierkunde (MTKD); the Texas Memorial Museum (TNHC); the Thailand Natural History Museum (THNHM); the University of Kansas (KU); the Western Australian Museum, Perth (WAM); the Zoologisch Museum Amsterdam (ZMA); the Zoologisches Forschungsinstitut und Museum Alexander Koenig (ZFMK); the Zoologisches Museum für Hamburg (ZMH); the Zoologisches Museum, Universität Humboldt, Berlin (ZMB); and Zoological Survey of India (ZSI).

Diagnoses for genera and species are based upon data collected for Murphy (2007a) and other projects listed in the Literature Cited. Distributions are primarily based upon Murphy (2007a), but other publications used are also cited.

Accounts for Genera and Species

Fangless Homalopsids

Homalopsidae Bonaparte, 1845

Brachyorrhos Kuhl in Schlegel, 1826

Coluber Linnaeus, 1758: 128.
Brachyorrhos Kuhl in Schlegel, 1826: 236.
Brachyorrhus Agassiz, 1847: 51.
Calamaria [in part] Schlegel, 1837a: 25.
Rabdion Bleeker, 1860: 42.
Atractocephalus Sauvage, 1879: 62.
Oxyorrhos Fischer, 1879: 89.
Brachyura Edgar and Lilley, 1993: 136.

TYPE SPECIES: *Brachyorrhos albus*.

CONTENT: Four species: *B. albus*, *B. gastrotaenius*, *B. raffrayi*, *B. wallacei*.

DISTRIBUTION: Endemic to eastern Indonesia (Moluccas and possibly the Aru Islands).

DIAGNOSIS: *Brachyorrhos* are the only homalopsid snakes known to have: bilobed nasal scales separated by rostral, rostral that is as broad as tall, and divided internasal behind and dorsal to nasals. Members of this genus can be distinguished from *Calamophis* (with which it has been long confused) by lack of dorsal scale row reduction (*Brachyorrhos* has 19–19–19, *Calamophis* has 19–19–17); dorsal scales ovate, slightly imbricate or juxtaposed compared to dorsal scales in *Calamophis*; longer snout, divided nasal scale, and tail that lacks constriction at base and tapers gradually to tip, premaxillary bone present.

1. *Brachyorrhos albus* (Linnaeus)

Seram Short-tailed Snake

Figure 1

Coluber albus Linnaeus, 1758: 128. Holotype: NRM 19. Type locality: "Indiis" (Ambon, Indonesia).
Brachyorrhos albus: Kuhl in Schlegel, 1826: 236.
Calamaria brachyorrhos Müller, 1857: 39.

DISTRIBUTION: Indonesian islands of Seram and its satellites (Ambon, Haruku, Nusa Laut, Saparua). Additionally, one specimen from Pulau Bisa (MZB 2609) is morphologically similar to this species, but needs molecular confirmation. *Brachyorrhos albus* has also been reported from the Banda Islands (Boettger, 1895), but speeimens from this island group need to be examined to verify identity (Murphy et al., 2012a).

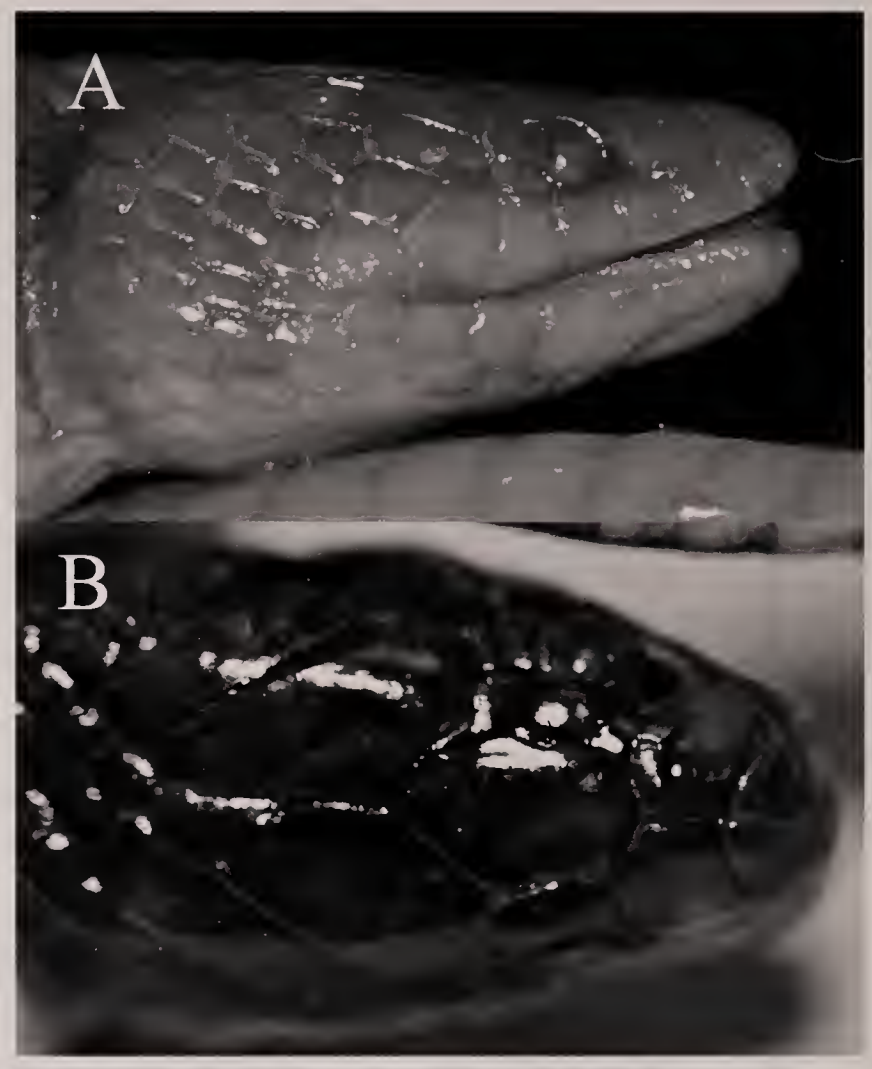


FIG. 1. *Brachyorrhos albus*, FMNH 142323, Ambon, Indonesia. (**A**) profile, (**B**) crown.

DIAGNOSIS: Distinct preocular scale usually present; seven upper labials, fourth (rarely 3+4) in orbit, sixth is tallest; dorsal scales more lanceolate (elongated, taper posteriorly) than in congeners; usually single temporal scale contacting postoculars in Ambon population; two primary temporals in some Seram individuals.

SPECIMENS EXAMINED (n = 20): **INDONESIA:** Ambon, Waai, FMNH 134322–24, 142332, 142145–46; MZB 1524A–B; no specific locality: MSNG 30192a; Seram, Honititoe, FMNH 109949, 119654; BMNH 442222, 6312425; Saunulu, MZB 2364; RMNH.RENA 576; ZMA 10494(2); ZMA 10104(2). Pulau Bisa: MZB 2609.

2. *Brachyorrhos gastrotaenius* (Bleeker)

Buru Short-tailed Snake

Figure 2

Rabdion gastrotaenia Bleeker, 1860: 286. Holotype: BMNH 63.12.4.25. Note that RMNH.RENA 3977 from "O-I Archipel" (= East Indies Archipelago) is described as a "co-type" for this species, but it had been skinned and scale count data are therefore not available. No mention of syntypes is made by Bleeker (1860). Type locality: "Amboina" (= Ambon), in error. Distribution for this species is suspected to be the island of Buru (Murphy et al., 2012a).
Oxyorrhos fusiformis Fischer, 1879 (1880): 89. Type locality: " ... von Buru (Boeroe) im indifchen Archipel." Note: Schlüter and Hallermann (1997) suggested the syntypes (SMNS 1327–3) were lost in World War II.
Brachyorrhos albus: Boulenger, 1893, 1: 305 [in part].

NOTE: Murphy et al. (2012a) found Bleeker's type to most closely match the specimens of *Brachyorrhos* from Buru and applied this name to that population, commenting that there

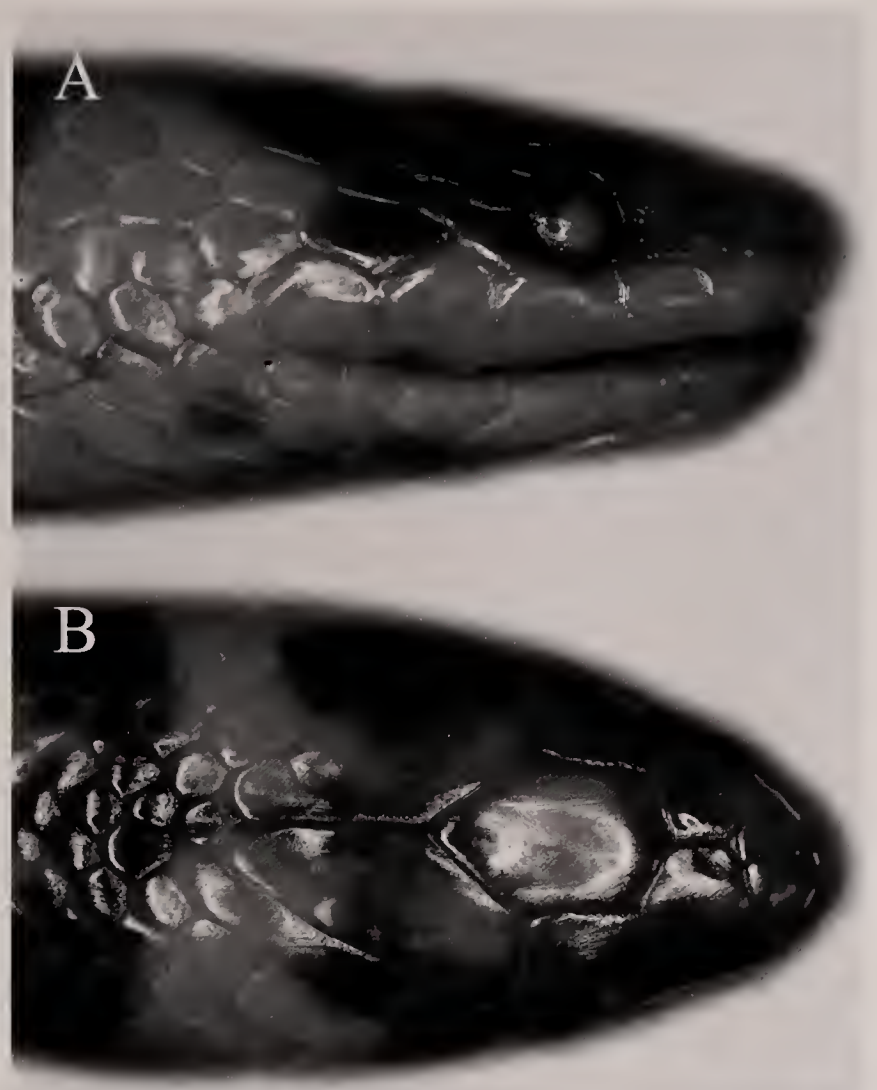


FIG. 2. *Brachyorrhos gastrotaenius*, BMNH 63.12.4.25, holotype. Buru, Indonesia (uncertain). See comment in account. (**A**) profile, (**B**) crown. Photo credit Kate L. Sanders.

were some discrepancies in the ventral and subcaudal counts. Thus, there may be two or more species of *Brachyorrhos* on Buru.

DISTRIBUTION: Buru, Indonesia.

DIAGNOSIS: Six upper labials, fourth (rarely 3+4) in orbit, fifth is tallest; mid-ventral stripe often present. This combination of characters separates this species from all other members of the genus.

SPECIMENS EXAMINED (n = 8): **INDONESIA:** Ambon (probably in error), BMNH 63.12.4.25; Buru, Fakal, ZMA 13.044(3); Rana, ZMA 12.844(3); no specific locality, RMNH.RENA 572.

3. *Brachyorrhos raffrayi* (Sauvage)

Ternate Short-tailed Snake

Figure 3

Atractocephalus raffrayi Sauvage, 1879: 62. Holotype: MNHN 5174. Type locality: Ternate, Indonesia.
Brachyorrhos albus var. *conjunctus* Fischer, 1879 (1880): 879.
Brachyorrhos albus: Boulenger, 1893, 1: 305 [in part].
Brachyorrhos raffrayi: Murphy et al., 2012a: 501.

DISTRIBUTION: Ternate, Indonesia (Murphy et al., 2012a).

DIAGNOSIS: Six upper labials, the third, rarely 3+4, enter the orbit, tallest upper labial is third; very pointed snout. A preocular is present in about 35% of the specimens examined, making it possible to confuse this species with *B. albus*.

SPECIMENS EXAMINED (n = 17): **INDONESIA:** Ternate, MNHN 5174; BMNH 82.11.25.14, 48.1.31.10; MNHN 5782, 1991.1657; MSNG 30222a–f, 54459–62; MZB 4009–4010.

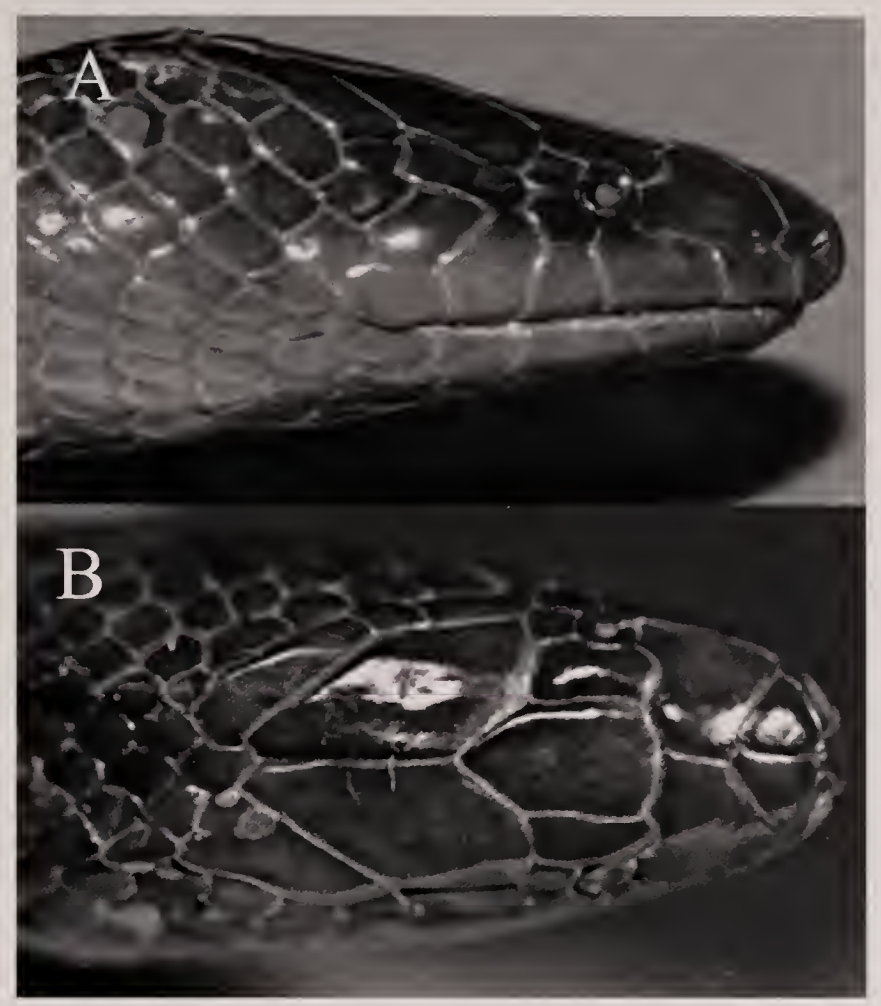


FIG. 3. *Brachyorrhos raffrayi*, MNHN 5174, holotype. Ternate, Indonesia. (**A**) profile, (**B**) crown.

4. *Brachyorrhos wallacei* Murphy, Mumpuni, de Lang, Gower, and Sanders

Halmahera Short-tailed Snake

Figure 4

Brachyorrhos albus: Boulenger, 1893, 1: 305 [in part].
Brachyorrhos wallacei Murphy, Mumpuni, de Lang, Gower, and Sanders, 2012a: 510. Holotype: MZB 1059. Type locality: Jailolo, Halmahera, Indonesia.

DISTRIBUTION: Halmahera, Indonesia (Murphy et al., 2012a).

DIAGNOSIS: Usually lacks preocular, usually seven (rarely six) upper labials, tallest is sixth (rarely fifth). This snake is quite similar to *B. raffrayi*, which has upper labial three in the orbit and the third is the tallest. Specimens of *B. wallacei* usually have the fourth upper labial (rarely 3+4) in the orbit, and the fifth is the tallest. Mitochondrial DNA data show that *B. raffrayi* and *B. wallacei* are separated by a deep molecular divergence despite their morphological similarity (Murphy et al., 2012a).

SPECIMENS EXAMINED (n = 11): **INDONESIA:** Halmahera, Jailolo, MZB 3462–3464; USNM 237145–150; Sidangoli, MZB 2111; Weda Bay Mines, MZB 4487.

Homalopsidae Bonaparte, 1845

Calamophis Meyer

Calamophis Meyer, 1874: 135.
Brachyorrhos Peters and Doria, 1878: 371.

TYPE SPECIES: *Calamophis jobiensis.*

CONTENT: Four species: *C. jobiensis*, *C. katesandersae*, *C. ruuddelangi*, *C. sharonbrooksae.*

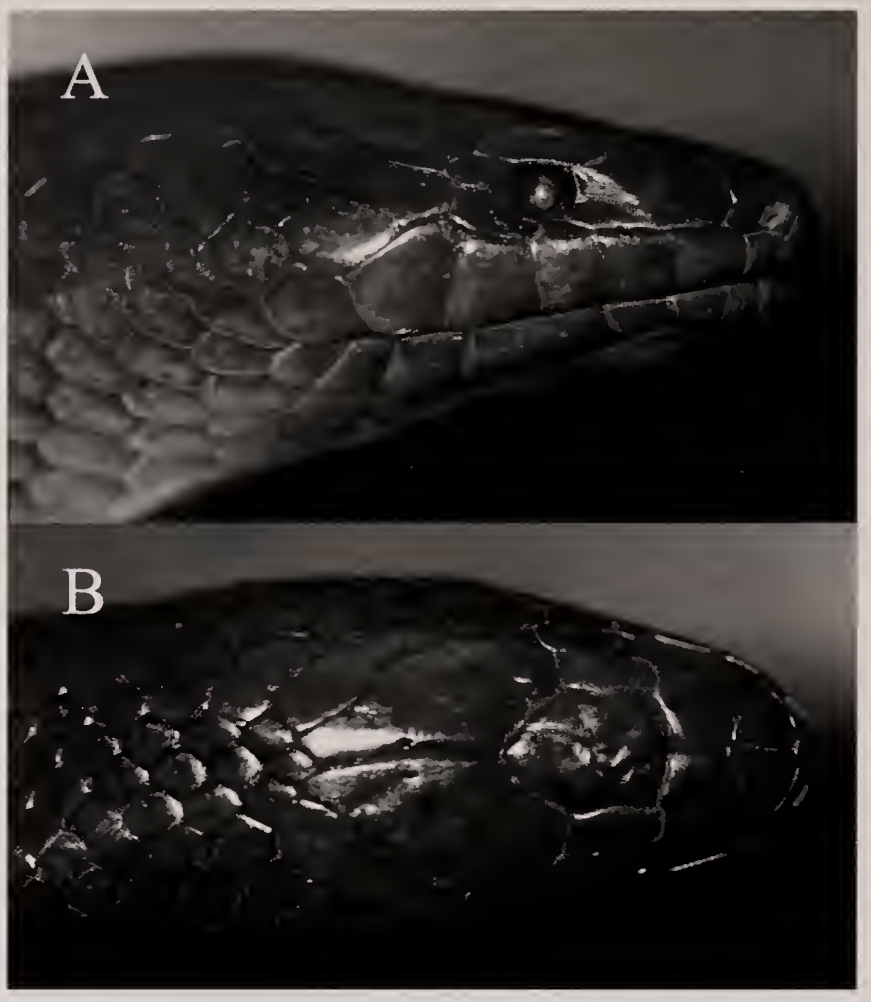


FIG. 4. *Brachyorrhos wallacei*, MZB 01059, holotype. Halmahera, Indonesia. Photo credit Kate L. Sanders.

DISTRIBUTION: West Papua, Indonesia: Ambuaki, Andai, Kebar Valley, Mount Arfak, and Yapen Island. The Papua New Guinea locality for *B. jobiensis* cited by Iskandar and Colijn (2001a,b) is based on *Mainophis robusta*, which is a synonym of the elapid *Furina tristis* (Shea & Sadlier, 1999).

DIAGNOSIS: Rostral broader than tall, nasal scale undivided, quadrangular; nares tiny, crescent-shaped, valvular; internasal single; postocular single; dorsal scales in 19 rows that are reduced to 17 anterior to vent will readily separate these snakes from *Brachyorrhos*; dorsal scales lanceolate, imbricate; base of tail constricted; tail thick and tapers slowly to almost blunt tip; males of some species have tubercles on scales in first four rows just anterior and posterior to vent, premaxillary bone present.

5. *Calamophis jobiensis* Meyer

Yapen Island Stout-tailed Snake

Calamophis jobiensis Meyer, 1874: 135. Holotype: MTKD 1026, destroyed in World War II. Type locality: Ansus, Yapen, Indonesia.
Brachyorrhos jobiensis: Peters and Doria, 1878: 371.
Brachyorrhos albus: Boulenger, 1893, 1: 305 [in part].

DISTRIBUTION: Known only from type locality on Yapen Island, Indonesia.

DIAGNOSIS: This diagnosis is based on a translation of the original description: 164 ventrals and 10 subcaudals. Upper labials six; third and fourth enter orbit, eight lower labials, one preocular, one postocular; pentagonal internasal contacts rostral with one side and penetrates between prefrontals; subcaudals divided.

SPECIMENS EXAMINED: None.

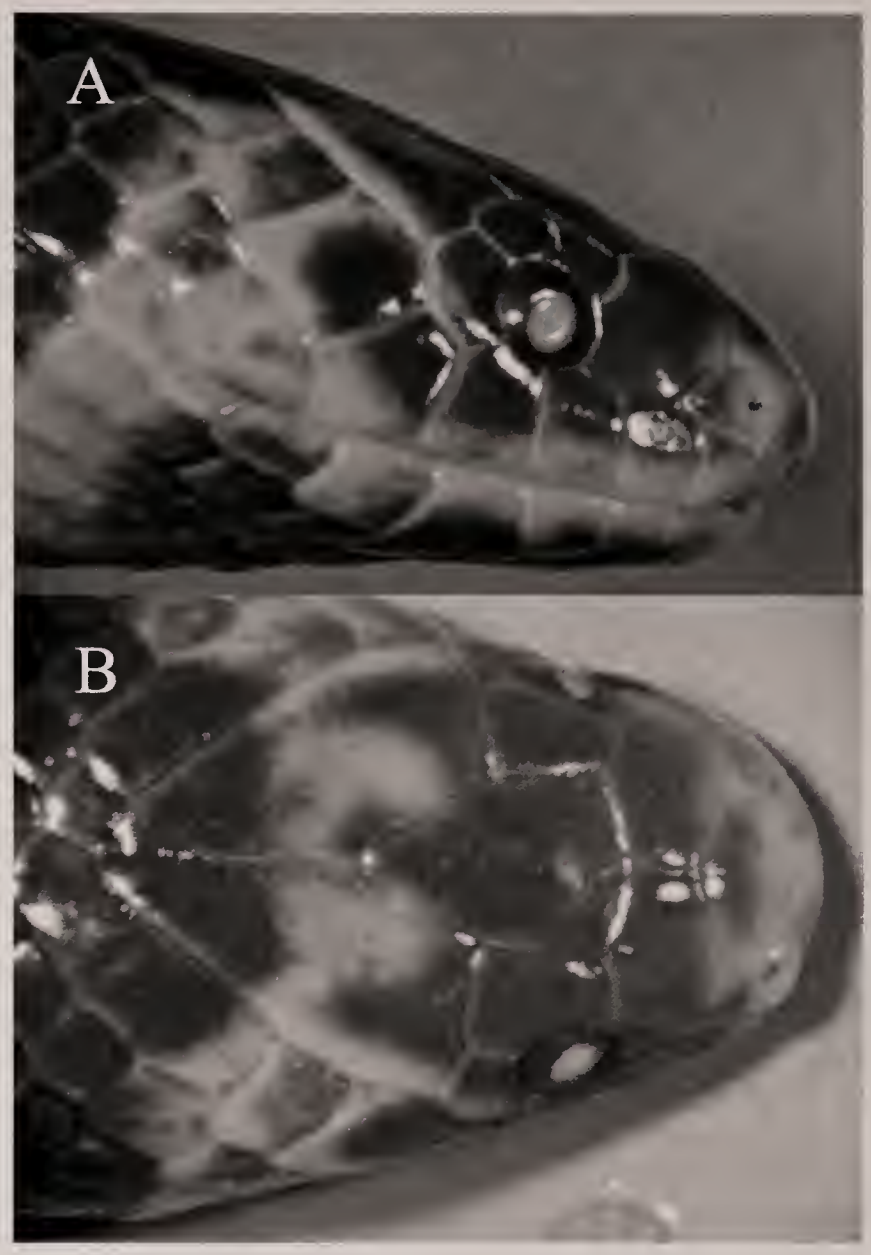


FIG. 5. *Calamophis katesandersae*, MSNG 56343–1, holotype. (**A**) profile (**B**) crown.

6. *Calamophis katesandersae* Murphy

Andian Stout-tailed Snake

Figure 5

Brachyorrhos jobiensis: Peters and Doria, 1878: 371 [in part].
Calamophis katesandersae Murphy, 2012: 518. Holotype: MSNG 56343–1. Type locality: Andia, West Papua.

DISTRIBUTION: Known only from type locality, Andia, West Papua (Murphy, 2012).

DIAGNOSIS: Laterally compressed body (mid-body width 75–79% of body's height), exceptionally short tail (3.7–3.8% of snout–vent length [SVL]); frontal pentagonal but almost triangular; five or six upper labials; seven lower labials; low subcaudal count (eight or nine).

SPECIMENS EXAMINED (n = 2): **INDONESIA:** West Papua, Andai, MSNG 56343(1–2).

7. *Calamophis ruuddelangi* Murphy

Kebar Stout-tailed Snake

Figure 6

Calamophis ruuddelangi Murphy, 2012: 520. Holotype: MNHN 5175. Type locality: Ambuak, West Papua, Indonesia.
Brachyorrhos jobiensis: Peters and Doria, 1878: 371 [in part].

DISTRIBUTION: Known only from the type locality and Kebar Valley, West Papua (BPBM 3850), Indonesia (Murphy, 2012).

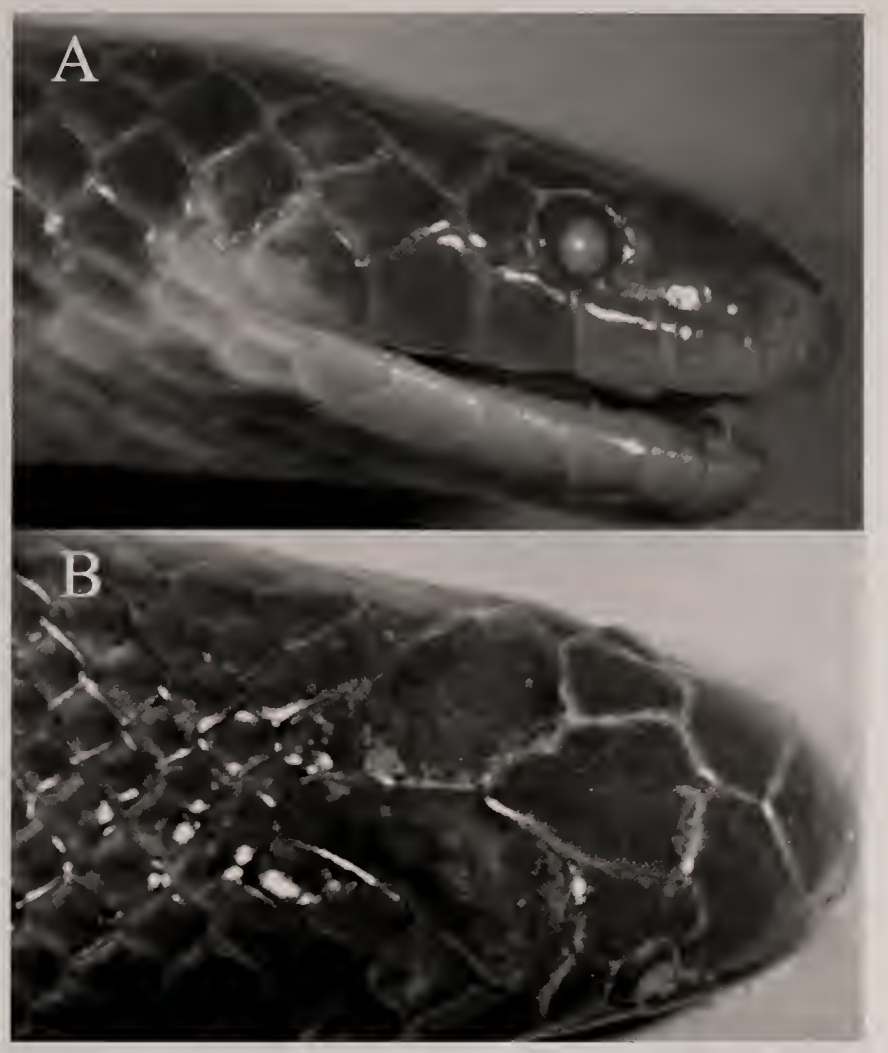


FIG. 6. *Calamophis ruuddelangi*, MNHN 5175, holotype. (**A**) profile, (**B**) crown.

DIAGNOSIS: Gracile cylindrical body, relatively short tail (12% of SVL); six upper labials, fifth tallest, three and four shorter, ventrals 143–145, subcaudals 21–23.

SPECIMENS EXAMINED (n = 2): **INDONESIA:** West Papua Ambuaki, in the Tamrau Mountains, MNHN 5175; Manokwari Division, Kebar Valley, BPBM 3850.

8. *Calamophis sharonbrooksae* Murphy

Arfak Stout-tailed Snake

Figure 7

Calamophis sharonbrooksae Murphy, 2012: 521. Holotype: MSNG 30193–1. Type locality: Mount Arfak, West Papua, Indonesia.
Brachyorrhos jobiensis: Peters and Doria, 1878: 371 [in part].

DISTRIBUTION: Known only from type locality.

DIAGNOSIS: Robust cylindrical body, tail 9.0 to 9.6% of SVL; upper labials three, four, and five about equal in height; rostral to frontal distance greater than parietal seam; dorsal scales uniform brown—no center spot of dark pigment; ventrals 149–150, subcaudals 17–19.

SPECIMENS EXAMINED (n = 2): **INDONESIA:** West Papua, Mount Arfak, MSNG 3019 (1–2).

Homalopsidae Bonaparte, 1845

Karnsophis Murphy and Voris

Brachyorrhos: Bleeker, 1857c: 472, 1857b: 231, 1860: 286.
Karnsophis Murphy and Voris, 2013: 142.

TYPE SPECIES: *Karnsophis siantaris.*

CONTENT: One species.

DISTRIBUTION: Known only from type locality in Sumatra (Murphy and Voris, 2013).

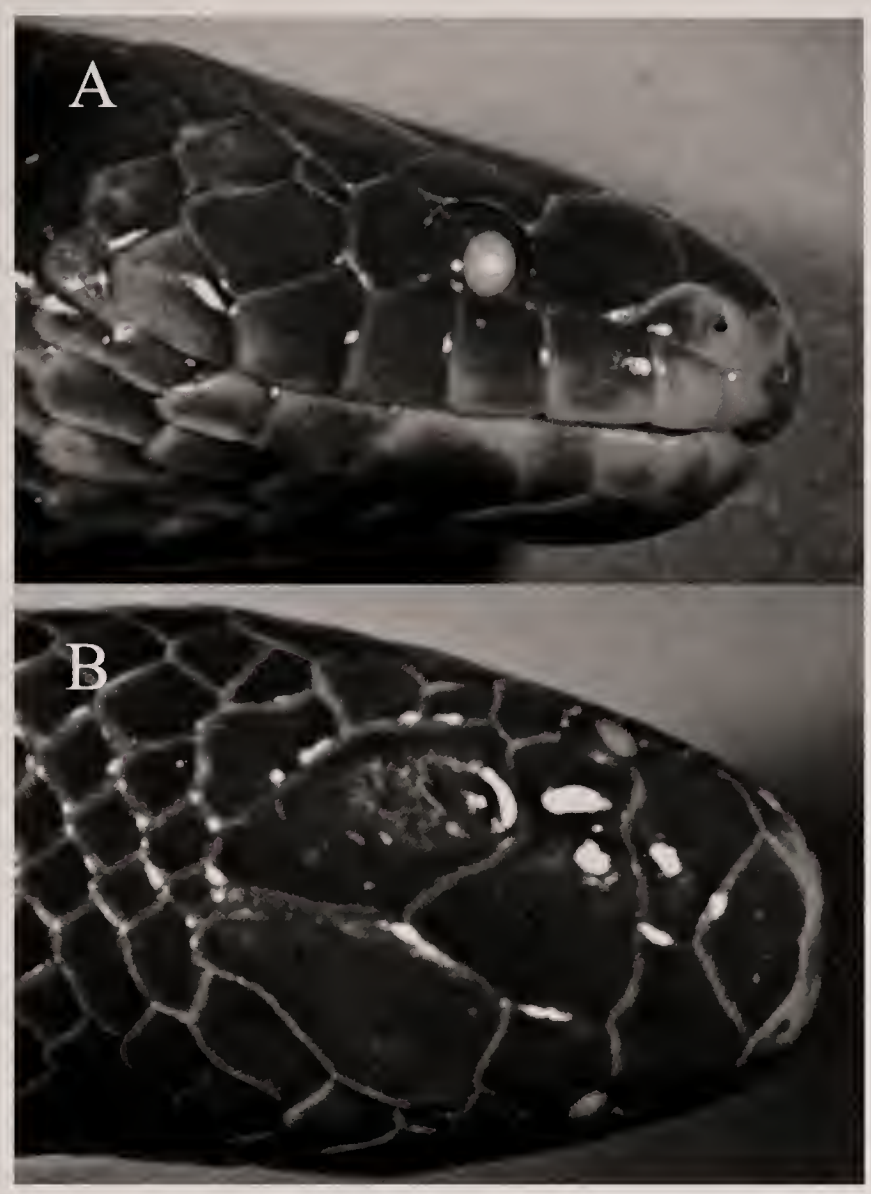


FIG. 7. *Calamophis sharonbrooksae*, MSNG 30193–1, holotype. (**A**) profile, (**B**) crown.

DIAGNOSIS: Fangless, with 19 scale rows not reduced posteriorly; depressed skull, rostral not visible from above; eye diameter greater than the eye–mouth distance, slightly countersunk lower jaw, laterally compressed tail; premaxillary bone is absent.

9. *Karnsophis siantaris* Murphy and Voris

Sumatran Short-tailed Snake

Figure 8

Brachyorrhos albus: Bleeker, 1857c: 472; 1860: 286 [in part].
Karnsophis siantaris Murphy and Voris, 2013: 142. Holotype: USNM 103578, adult male from Siantar, Sumatera Utara, Sumatra, Indonesia.

DISTRIBUTION: Known from type locality, Siantar, Sumatera Utara, Sumatra. However, Bleeker (1860) reported *Brachyorrhos albus* from Agam (~0°15′S, 100°05′E) and Padang (~0°57′S, 100°21′E), both central Sumatran locations which likely represent this species.

DIAGNOSIS: Fangless, 19 scale rows not reduced posteriorly, premaxillary absent, nasal bones greatly reduced in size, neural spine present on the atlas (absent in *Brachyorrhos*). Distinguished from *Brachyorrhos* by its depressed skull, rostral not visible from above; eye diameter greater than eye–mouth distance, countersunk lower jaw, laterally compressed tail. Distinguished from *Calamophis* by 19 scale rows just anterior to the vent (*Calamophis* has 17); divided internasal (single in *Calamophis*); divided nasal scale (single in *Calamophis*); two postoculars (one in *Calamophis*).

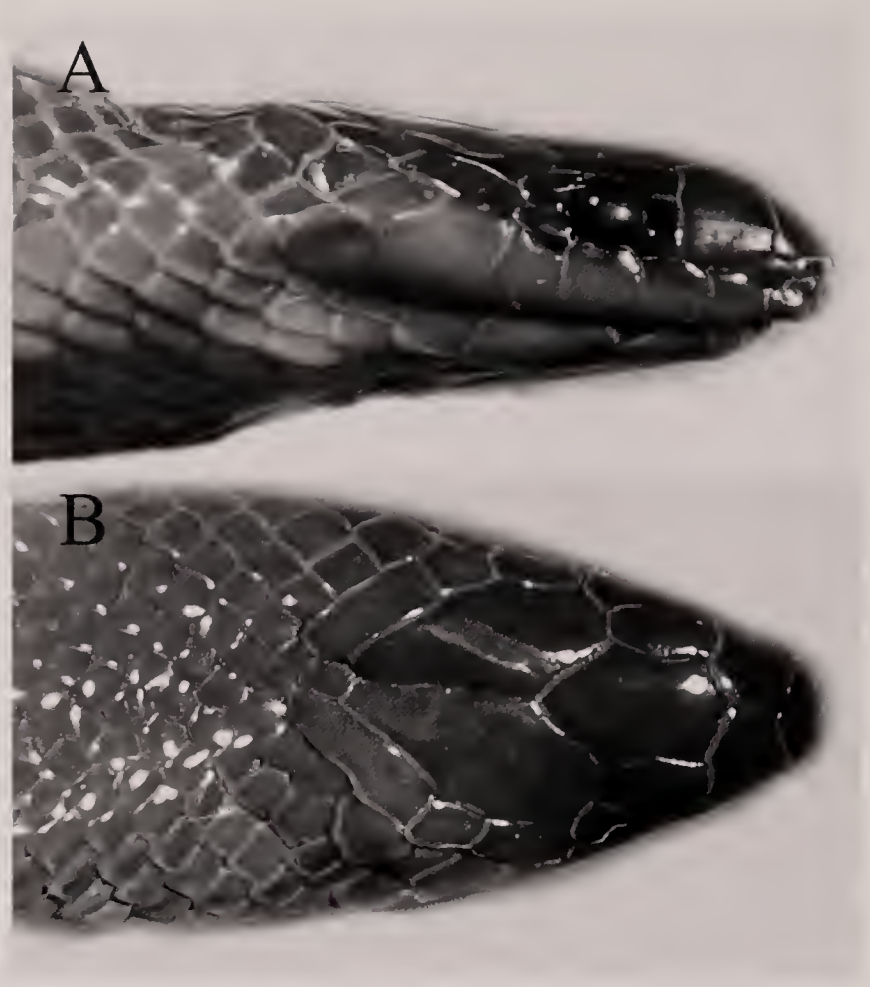


FIG. 8. *Karnsophis siantaris*, USNM 103578, holotype. (**A**) profile, (**B**) crown.

SPECIMENS EXAMINED (n = 1): **INDONESIA:** Sumatra, Sumatera Utara, Siantar, USNM 103578.

Fanged Homalopsids

Homalopsidae Bonaparte, 1845

***Bitia* Gray**

Bitia Gray, 1842: 64. Type species: *Bitia hydroides* Gray, 1842, by monotypy.
Homalopsis [in part] Cantor, 1847: 104, pl. 40, fig. 4.
Hipistes Gray, 1849: 77.

TYPE SPECIES: *Hipistes fasciatus* Gray, 1849 (= *Bitia hydroides* Gray, 1842), by monotypy.

CONTENT: One species.

DISTRIBUTION: Occurs in coastal waters of Myanmar and western Indochinese peninsula eastward to at least Borneo (Murphy, 2007a).

DIAGNOSIS: Large head plates, dorsal scale rows at mid-body 37–43; ventral scales keeled; parietal scales fragmented; dorsal scales small, triangular have exposed skin between them. Convergent with true sea snakes, except it lacks a paddle tail.

10. *Bitia hydroides* Gray

Keel-bellied Mud Snake

Figure 9

Bitia hydroides Gray, 1842: 64. Holotype: BMNH 1946.1.2.38. Type locality: unknown.
Homalopsis hydrina Cantor, 1847: 104. Holotype: possibly in the ZSI collection, Calcutta, India. Type locality: sea off Kedah Coast, Peninsular Malaysia.
Hipistes fasciatus Gray, 1849: 78. Holotype: BMNH 1946.1.2.50. Type locality: from East Indies.
Hipistes hydrinus: Günther, 1864: 287.

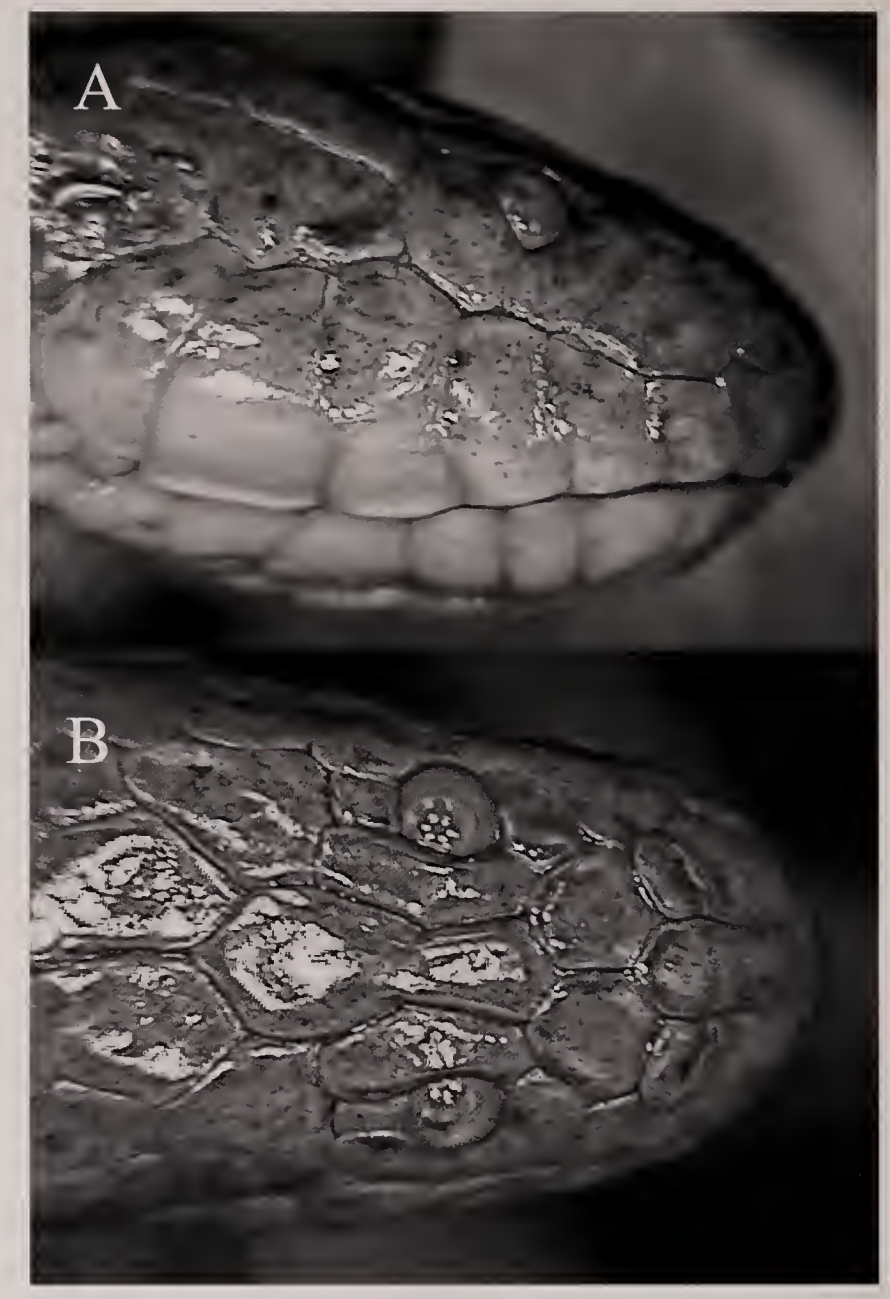


FIG. 9. *Bitia hydroides*, FMNH 218878 from Johore, Malaysia. (**A**) profile, (**B**) crown.

DISTRIBUTION: Coastal waters of southern Myanmar, Thailand, Malaysia, Singapore, and Borneo. Possibly in other areas of the Greater Sundas (Murphy, 2007a).

DIAGNOSIS: Scale rows at mid-body 37–43; ventral scales keeled; parietal scales fragmented; single internasal; dorsal scales small, triangular, exposed skin between them; loreal in contact with first 3 or 4 upper labials; ocular ring scales large, plate-like; upper labials 3–4 or 4–5 below the orbit; tail short, 8–11% of SVL.

SPECIMENS EXAMINED (n = 28): **MALAYSIA:** Johore, FMNH 218850, 229783–85, 229787–88, 2298803–08, 229790–97; **MYANMAR:** CAS 211899, 211900, 211906–08, 204955–56; UMMZ 61291.

Homalopsidae Bonaparte, 1845

***Cantoria* Girard, 1858**

Cantoria Girard, 1858: 182. Type species: *Cantoria violacea* Girard.
Hydrodipsas Peters, 1859: 270. Type species: *Hydrodipsas elapiformis* Peters.

CONTENT: One species.

DISTRIBUTION: Andaman Islands, Andaman coasts of Myanmar, Thailand, peninsular Malaysia, possibly Sumatra and Borneo (Murphy, 2007a).

DIAGNOSIS: Convergent with true sea snakes (Hydrophiinae), except lacks a paddle tail. The head small, barely discernible from neck, body exceptionally slender, dorsal

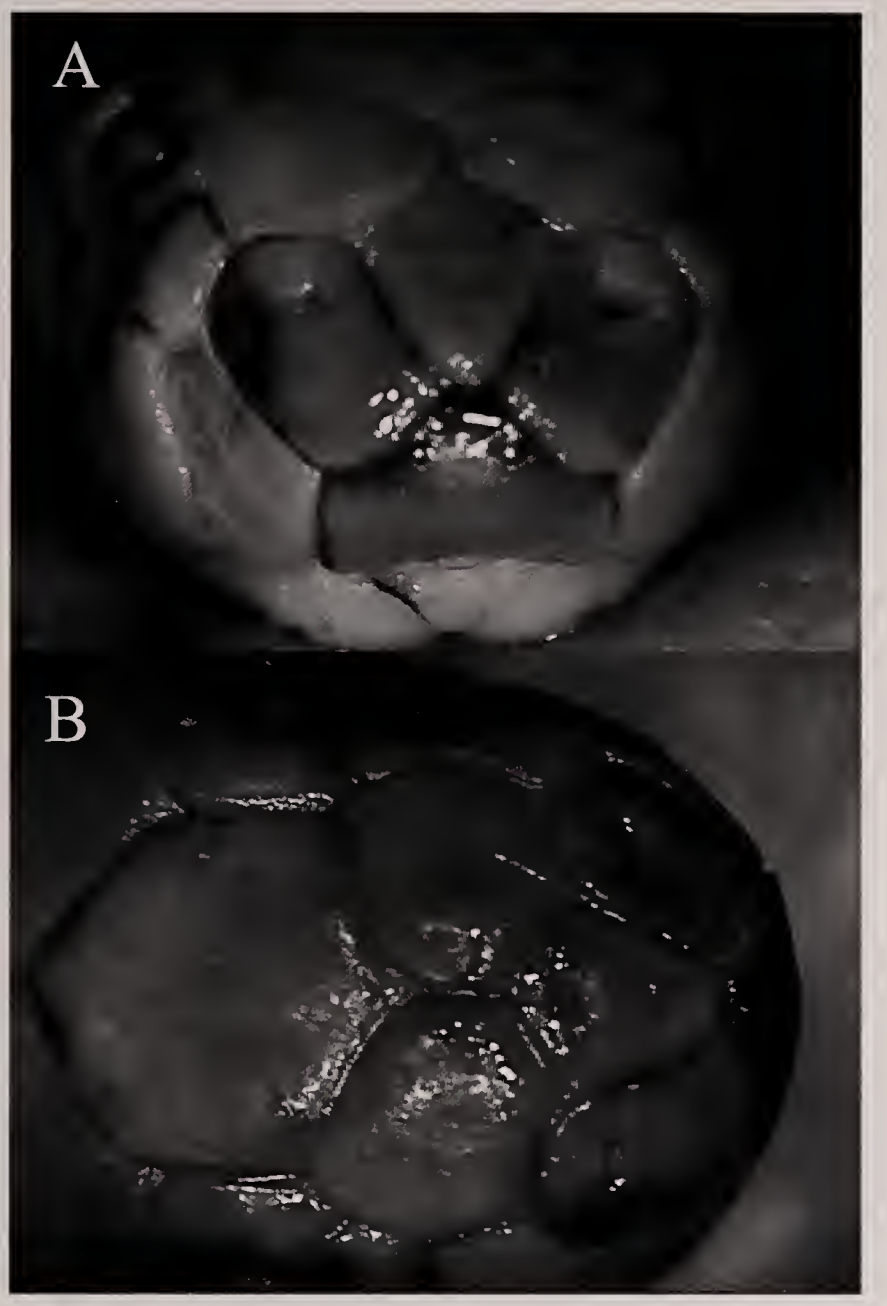


Fig. 10. *Cantoria violacea*, no data. (**A**) rostral view, (**B**) crown.

scales at mid-body in 19 rows; prefrontal as large as nasal scale; five upper labials; loreal contacts first 2–3 upper labials; subocular scale separates upper labials 3–4 from orbit; 7–8 lower labials; ventral count exceeds 234 (more ventrals than any other homalopsid).

11. *Cantoria violacea* Girard

Cantor's Water Snake

Figure 10

Cantoria violacea Girard, 1858: 182. Holotype: USNM 5523. Type locality: near Singapore.
Hydrodipsas elapiformis Peters, 1859: 270, fig. 1. Holotype: Berlin Museum. Type locality: Sarawak.
Hemiodonotus elapiformis: Jan, 1863: 79.
Cantoria elongata Günther, 1864: 277 [based upon Girard's specimen].
Cantoria elapiformis: Günther, 1868: 124.
Cantoria dayana Stoliczka, 1870: 208, pl. 11, fig. 5. Type locality: near Amherst, mouth of Moulmein River, Burma. According to Das et al. (1998), this is Kyaikkami in southern Myanmar. Mawlamyine, southern Myanmar, is listed as the type locality in the ZSI register and in Sclater (1891). Holotype: ZSI 8195 (lost according to Smith [1943]).

Distribution: Andaman Islands, Andaman coasts of Myanmar, Thailand, peninsular Malaysia, possibly Sumatra and Borneo (Murphy, 2007a).

Diagnosis: Can be distinguished from all other homalopsids by the combination of 19 dorsal scales rows at mid-body; nasals separated by internasal scale; prefrontals make broad contact; five upper labials; loreal contacts first 2–3 upper labials; subocular scale separates upper labials 3–4 from orbit; 7–8 lower labials; ventral count exceeds 234 (more ventrals than any other homalopsid).

Specimens Examined (n = 20): **India:** Andaman Islands, BMNH 1937.9.7.5; **Myanmar:** CAS 211909–10, 2119012–20; **Singapore:** USNM 5523, ZRC 2.3317; **Thailand:** FMNH 206912, 250115–18. No data: KU 92346.

Homalopsidae Bonaparte, 1845

Cerberus Cuvier, 1829

Hydrus Schneider, 1799: 246 [in part].
Elaps Schneider, 1801: 301 [in part].
Hurria Daudin, 1803a, 5: 434.
Coluber (non-Linnaeus, 1766) Daudin, 1803b, 7: 167.
Strephon Goldfuss, 1820: 151.
Python (non-Daudin, 1803) Merrem, 1820: 89.
Cerberus Cuvier, 1829, 2: 81.
Homalopsis Schlegel, 1837a, 2: 332 [in part].

Type Species: *Cerberus rynchops.*

Content: Five species: *C. australis*, *C. dunsoni*, *C. microlepis*, *C. rynchops*, *C. schneiderii.*

Distribution: West coast of India to Palau in Micronesia, southward to New Guinea and Australia.

Diagnosis: Keeled dorsal scales at mid-body in 21–29 rows, parietal scales fragmented; nasals in contact; fleshy cheeks.

12. *Cerberus australis* Gray

Australian Bockadam

Figure 11

Homalopsis australis Gray, 1842: 59–68. Holotype: BMNH 1946.1.2.40. Type locality: Port Essington, Northern Territory, Australia.
Cerberus australis: Gray, 1849: 65.
Cerberus rynchops novaeguineae Loveridge, 1948: 388. Holotype: MCZ 22818. Type locality: Merauke, Dutch New Guinea.
Cerberus rynchops australis: Loveridge, 1948: 389.
Cerberus rynchops [in part]: Cogger et al., 1983: 210.

Distribution: Northern coastal Australia and the south coast of New Guinea. A single specimen is known from Waingapu, Sumba Island, Indonesia. It is unclear if this is a waif or represents an established population (Murphy et al., 2012b).

Diagnosis: Dorsal scales in 23 rows at mid-body, upper labials 2–4 contact loreal, scales on the crown imbricate; those anterior to the angle of jaw lack keels; first labial does not contact loreal; last upper labial horizontally divided; venter is mottled.

Specimens Examined (n = 40): **Australia:** Northern Territory, Blackmore River, Channel Island, MAGNT 17029; Buffalo Creek, MAGNT 10688, 17029, 17551, 21529; SAMA 22504–5; Cape Don, WAM 26679; Casuarina Beach, Darwin, MAGNT 21715; Port Darwin, SAMA 6651; Dum in Mirree Island, Bynoe Harbor, MAGNT 25640; Fanny Bay, about 1.5 mi from Darwin, MCZ 4886; Humpty Doo district, QM 21795; Leanyer Swamp, Darwin, MAGNT 8271; Ludmilla, Darwin, MAGNT 31784; Melville I., SAMA 2260; Nightcliff (Darwin area), USNM 128264; Rapid Creek, MAGNT 2513, 5037, 6920, 18699; WAM 53779; Queensland: Edward River Community, NW of Edward River Mission, QM 23717, 23948, 28152, 28154; Western Australia: King River, 20 mi from coast, AMNH 104330; Forrest River, WAM 12601; Kalumburu, WAM 28113; Mission Cove, Napier Broome Baym, WAM 5751; Pago, WAM 1573a–b; Sir Graham Moore I., WAM 44056; Wyndham, WAM 32363, 151042; **Indonesia:** Irian Jaya, Merauke, MCZ

FIG. 11. *Cerberus australis*, no data. (**A**) profile, (**B**) crown.

22818, 22821; BMNH 1965.642; no locality data, MCZ 48846, 48862; Waingapu, Sumba I., WAM 101620.

13. *Cerberus dunsoni* Murphy, Voris, and Karns

Palau Bockadam

Figure 12

Cerberus rynchops: Gyi, 1970: 159.
Cerberus dunsoni Murphy, Voris, and Karns, 2012b: 11. Holotype: AMNH 116021. Type locality: Arakabesang (formerly Ngerekebesang) Island.

DISTRIBUTION: Palau Islands, Micronesia (Murphy et al., 2012b).

DIAGNOSIS: Dorsal scales in 23 rows at mid-body, upper labials 1–4 contact loreal; plate-like scales on crown rounded, juxtaposed, appear thickened compared to scales of other *Cerberus* species, ninth upper labial horizontally divided, ventral surface uniform black.

SPECIMENS EXAMINED (n = 6): **MICRONESIA:** Palau, Oreor Island, AMNH 70651; Ngesaol village, USNM 531967; Arakabesang (formerly Ngerekebesang) Island, AMNH 116020–21; UMMZ 65857; Babeldaob Island, Ulimang village, USNM 507563.

14. *Cerberus microlepis* Boulenger

Lake Buhi Bockadam

Figure 13

Cerberus microlepis Boulenger, 1893, 3: 18. Syntypes: BMNH 1946.1.7.24–25. Type locality: "Philippines."

DISTRIBUTION: Known only from the Lake Buhi area, Luzon Island, Philippines (Murphy et al., 2012b).

DIAGNOSIS: Dorsal scales in 27–31 scale rows at mid-body, all other congeners have 21–25 scale rows at mid-body; the venter is mottled.

FIG. 12. *Cerberus dunsoni*, AMNH 116020, Palau, Micronesia. (**A**) profile, (**B**) crown.

SPECIMENS EXAMINED (n = 17): **PHILIPPINES:** Luzon, Camarines Province, Lake Buhi, CAS 60947; USNM 1197697–98, 197844–48, 197851–197857. No data: BMNH 1946.1.7.24–25.

15. *Cerberus rynchops* (Schneider)

South Asian Bockadam

Figure 14

Hydrus rynchops Schneider, 1799, 1: 246. Holotype: Based on illustration in Russell's (1796) *Indian Serpents*, 1: 23, pl. 17. Type locality: Ganjam, India.
Enhydris rynchops: Sonnini and Latreille, 1801, 4: 202.
?*Boa mohuroides* Schneider, 1801, 1: 279.
Hydrus cinereus Shaw, 1802, 3: 567. Holotype: based on Russell's (1796) *Indian Serpents* illustration 1: 23, pl. 17, and BMNH 1966.1.21.55–57. Type locality: Ganjam, India.
Coluber cerberus Daudin, 1803c, 7: 167. Holotype: based on the illustration in Russell's (1796) *Indian Serpents*, 1: 23, pl. 17. Type locality: Ganjam, India.
Coluber schneiderianus: Daudin, 1803c, 7: 170.
Python molurus: Merrem, 1820: 89.
Python rynchops: Merrem, 1820: 90.
Homalopsis cerberus: Fitzinger, 1843 55.
Cerberus cerberus: Cuvier, 1829, 2: 81.
Cerberus grantii Cantor, 1836: 135 [*fide* Smith, 1943: 393].
Cerberus cinereus: Cantor, 1839: 54.
Homalopsis rhynchops: Cantor, 1847: 941.
Cerberus rynchops: Günther, 1864: 279.
Cerberus rynchops rynchops: Loveridge, 1948: 388.

DISTRIBUTION: West coast of India to Myanmar and Thailand in vicinity of Phuket Island (Murphy et al., 2012b). The western limits of its distribution were recently discussed by Vyas et al. (2013).

DIAGNOSIS: Dorsal scale rows 25 (rarely 23) at mid-body, imbricate plate-like scales on the crown have flat, thin appearance, keeled anterior to angle of jaw; the last two upper labials are horizontally divided; venter mottled.

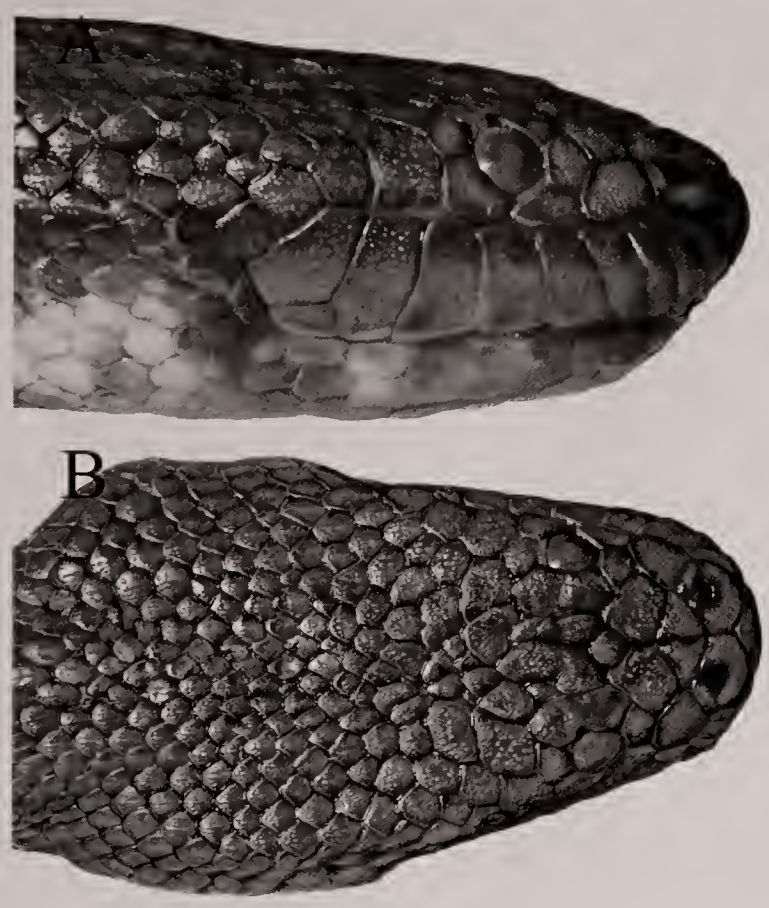


FIG. 13. *Cerberus microlepis*, AMNH 185874, Lake Buhi, Luzon, Philippines. (**A**) profile, (**B**) crown.

SPECIMENS EXAMINED (n = 53): **BANGLADESH:** Burigoalni, Sunderbunds, MCZ 58256; **INDIA:** Andaman Islands, CAS 12379, FMNH 134920; Calcutta, ANSP 5122–23, MCZ 5501; Cochin, Ernakulam, CAS 12257; Kerala, Malabar Coast, CAS 17249; Quilone, LSUMZ 24707; Krusadai I., CAS 13073–74; Madras, CAS 12256; Mamallapuram, CAS 12381; Pondicherry, MCZ 2229; UMMZ 94949–50, 113469; **MYANMAR:** Ayeyarwady Div., nr. Mwe Hauk Village, CAS 211000, 211003–04, 211012–13, 211948, 211983, 211986–88, 211991–98, 212001, 212005–12; Rangoon River, CAS 130769–72; **SRI LANKA:** nr. Negombo Point, Pitipana Fisheries Station, USNM 192727; Puttalam, AMNH 94493; Jaffna Lagoon, FMNH 121498–499; Asia, no specific locality, UMMZ 65671.

16. *Cerberus schneiderii* (Schlegel)

Southeast Asian Bockadam

Figure 15

Elaps boaeformis Schneider, 1801, 2: 301.
Homalopsis molurus: Boie, 1826: 213.
Python boaeformis: Merrem, 1820: 89.
Homalopsis schneiderii Schlegel, 1837a: 341.
Homalopsis rhinchops: Cantor, 1847: 91.
Cerberus acutus Gray, 1849: 65. Holotype: BMNH 1946.1.2.34. Type locality: Borneo.
Cerberus unicolor Gray, 1849: 65. Holotype: BMNH 1946.1.2.45. Type locality: Philippines.
Cerberus rynchops: Bleeker, 1857a: 233.
Cerberus boaeformis: Bleeker, 1857b: 238.
Hurria rynchops: Stejneger, 1907: 302.
Cerberus schneiderii: Murphy, Voris, and Karns, 2012b: 17. Lectotype: RMNH.RENA 1173. Type locality: Timor.

DISTRIBUTION: Andaman sea coast of Thailand eastward to the Philippines and southward throughout peninsular Malaysia and Indonesia to Halmahera and Seram (Murphy et al., 2012b).

DIAGNOSIS: Dorsal scale rows in 23 (rarely 25) scale rows at mid-body; the imbricate plate-like scales on crown have flat, thin appearance, lack keels anterior to angle of jaw; last upper labial horizontally divided; venter mottled.

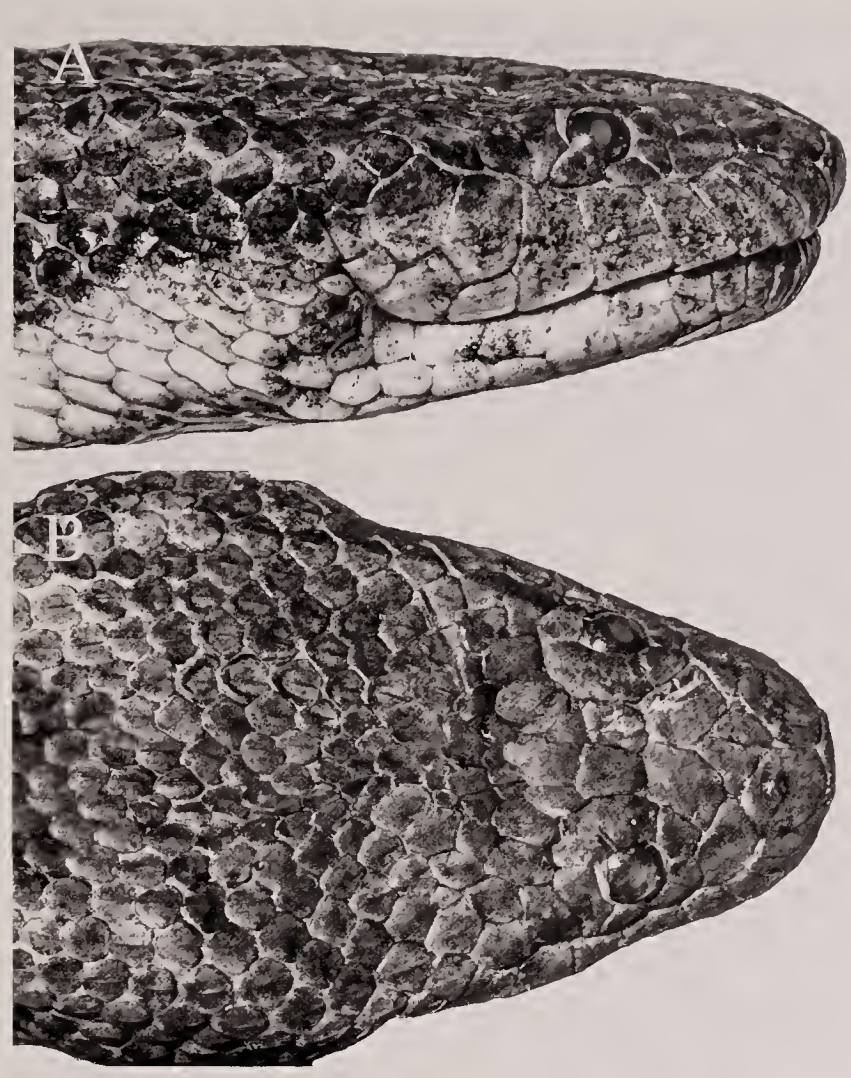


FIG. 14. *Cerberus rynchops*, no data. (**A**) profile, (**B**) crown.

SPECIMENS EXAMINED (n = 99): **INDONESIA:** Ambon, ANSP 5121, FMNH 169759; Timor, RMNH.RENA 1173 (lectotype); Waingapu, Sumba I., WAM 101610; Rinca I., WAM 104683; Medeka, Lembata I., WAM 105290; No specific locality, ANSP 5124; **MALAYSIA:** Sabah, FMNH 121206–07, 121431–433; SSM 0403, 0406, 0389, 0426; Sarawak, 4th Division Bintulu District, FMNH 148963; Selangor, FMNH 198605, 199678, 199679; Kuala Selangor, FMNH 203423, 203425–437, 203439–440, 203442–443, 224115, 224187; no specific locality, UMMZ 65857, 65862; **PHILIPPINES:** Jagoliaou I., Bohol Province, QM 28152, 28154; Bohol I., FMNH 202757–82. No specific locality, UMMZ 65432; **PALAWAN I.:** FMNH 15007, 15048; **SINGAPORE:** ANSP 5120; SAMA 22431, 22433, 22466; ZRC 2.3175–7, 2.3177, 2.3181, 2.3185–86; **THAILAND:** Nakhon Ratchasima Province, FMNH 180286, 180289, 180293; Phuket Province, FMNH 251509–516, 250125–128.

Homalopsidae Bonaparte, 1845

Dieurostus Berg, 1901

Eurostus Duméril, Bibron, and Duméril, 1854: 953.
Hypsirhina Jan, 1863: 78.
Dieurostus Berg, 1901: 290.
Enhydris Smith, 1943: 389.

TYPE SPECIES: *Eurostus dussumierii* Duméril, Bibron, and Duméril by monotypy.

CONTENT: One species: Dieurostus dussumierii.

NOTE: This genus was revalidated by Kumar et al. (2012).

TAXONOMIC COMMENTS: (1) *Hypsirhina malabarica* Werner (1913) may be a second species of this genus. The type was destroyed during World War II when Allied forces bombed Dresden, Germany. It had 25 scale rows at mid-body. (2) Note that the name *Eurostus* used by Duméril, Bibron, and Duméril is not available for this snake because it is preoccupied by *Eurostus* Dallas (Arthropoda, Insecta, Hemiptera) *fide* Williams and Wallach (1989). As a remedy Berg (1901) proposed

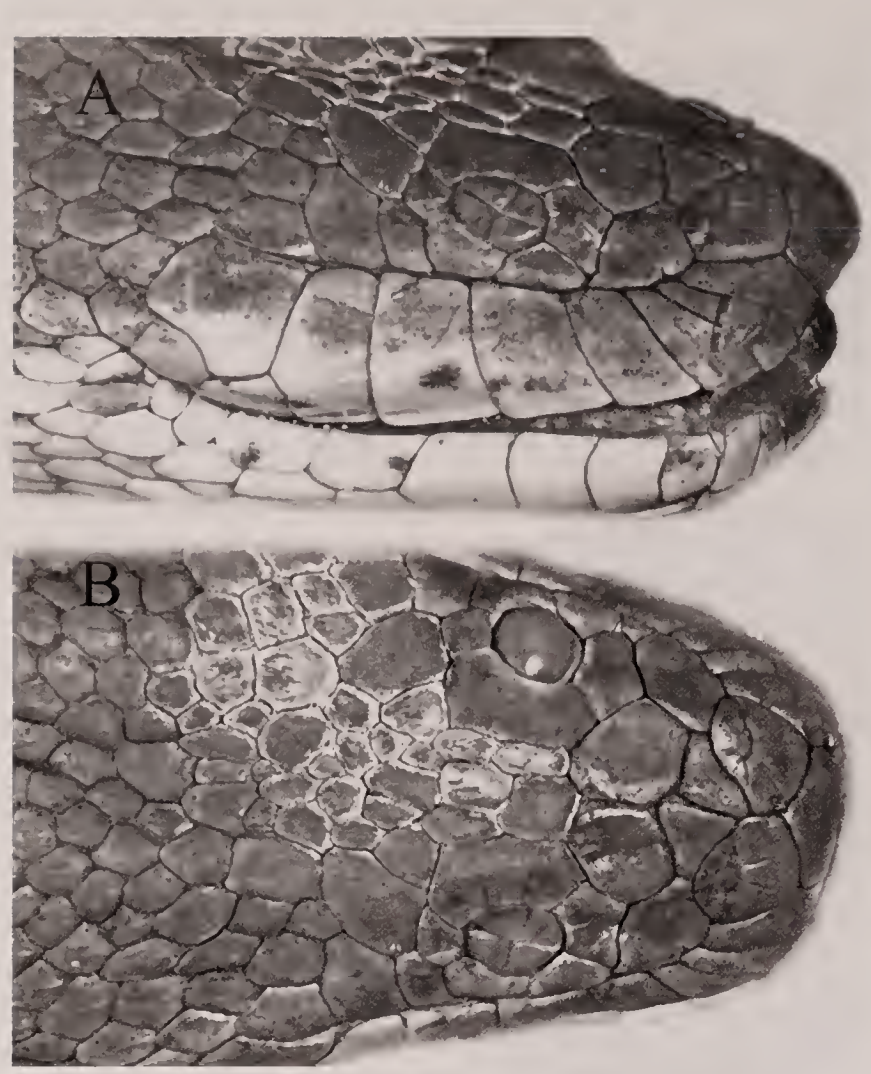


FIG. 15. *Cerberus schneiderii*, RMNH.RENA 1173, lectotype. Timor, Indonesia. (**A**) profile, (**B**) crown.

the name *Dieurostus* and Kumar et al. (2012) revalidated this genus.

DISTRIBUTION: Coastal plain of Kerala, India (Kumar and Captain, 2011).

DIAGNOSIS: Dorsal scales smooth in rows of 25 or 27, nasal scales in contact, posterior labials horizontally divided by divided internasal, upper labials 1–3 contacting loreal; five lower labials contacting chin shields.

17. *Dieurostus dussumierii* (Duméril, Bibron, and Duméril)

Kerala Mud Snake

Figure 16

Eurostus dussumierii Duméril, Bibron, and Duméril, 1854: 953. Holotype: MNHN c3458. Type locality: Bengal (in error). Corrected to Malabar Coast (Murphy, 2007a: 109).
Hypsirhina dussumierii: Jan, 1863: 78.
Hypsirhina malabarica Werner, 1913: 26.
Enhydris dussumierii: Smith, 1943: 389.
Dieurostus dussumierii: Kumar et al., 2012: 483.

DISTRIBUTION: Coastal plain of Kerala, India, from Vembanad-kole wetlands of Kerala (09°00′–10°40′N, 76°00′–77°30′E) and Vellayani Lake (~8°26′06″N, 76°59′31″E) to Neyyar River, southern Kerala (Kumar and Captain, 2011).

DIAGNOSIS: Dorsal scales smooth in rows of 25 or 27, nasal scales in contact, posterior labials horizontally divided by divided internasal, upper labials 1–3 contacting loreal; five lower labials contacting chin shields; mostly uniform dorsum with lower ventrolateral stripe. The anterior edge of the first pair of chin shields is narrower than the posterior edge. Until recently known from only the type specimens.

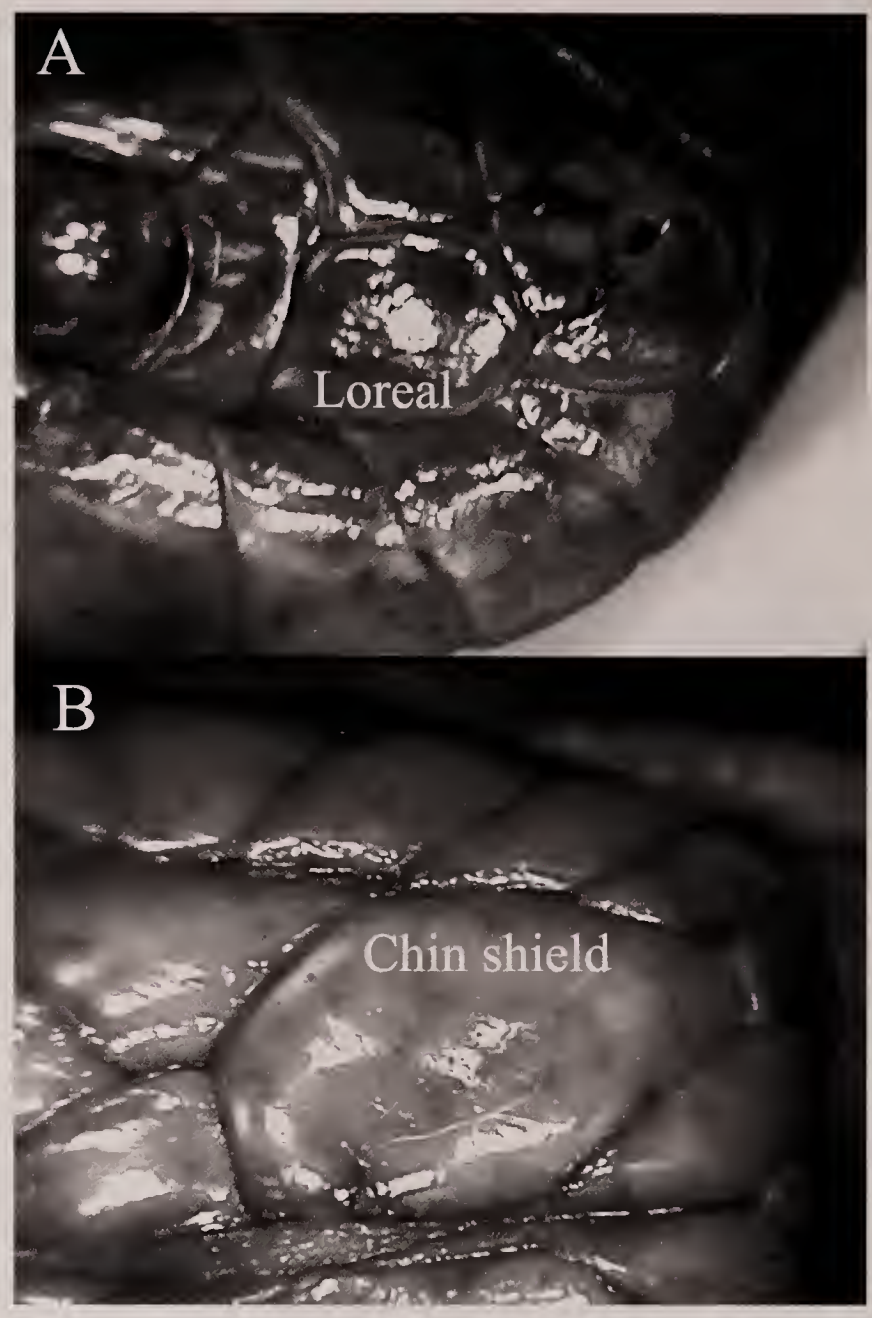


FIG. 16. *Dieurostus dussumierii*, MNHN 5752, one of the syntypes. (**A**) loreal view, (**B**) chin shield.

SPECIMENS EXAMINED (n = 2): **INDIA:** MNHN 3751 (type), and MNHN 5752 (3572).

Homalopsidae Bonaparte, 1845

Djokoiskandarus Murphy

Cantoria de Jong, 1926: 304. Type species: *Cantoria annulata* de Jong, 1926 by monotypy.
Djokoiskandarus Murphy, 2011: 233.

CONTENT: One species.

DISTRIBUTION: Southern coast of New Guinea, Trans-Fly region (Murphy, 2011).

DIAGNOSIS: Twenty-one scale rows at mid-body; internasal separating prefrontal and nasal scales, frontal contacts internasal, distinguishing it from all other homalopsids, including *Cantoria violacea*, which has 19 scale rows at mid-body, and the snakes in genus *Myron*, which can have 19 or 21 scale rows at mid-body.

18. *Djokoiskandarus annulatus* (de Jong, 1926)

Trans-Fly Mangrove Snake

Figure 17

Cantoria annulata de Jong, 1926: 304. Holotype: ZMA 11065. Type locality: Prins Frederik Hendrik Island, New Guinea.

FIG. 17. *Djokoiskandarus annulatus*, CAS 133812, Papua New Guinea. **(A)** profile, **(B)** crown.

Djokoiskandarus annulatus Murphy, 2011: 233.

DISTRIBUTION: Southern coast of New Guinea, Trans-Fly region (Murphy, 2011).

DIAGNOSIS: Mostly smooth scales but some posterior dorsal scales keeled; dorsal scales in 21 rows at mid-body reduced to 19 rows posteriorly; internasal separates prefrontal and nasal scales, frontal contacts internasal.

SPECIMENS EXAMINED (n = 4): **PAPUA NEW GUINEA:** Bobo Island, MCZ 136063; Daru Island, CAS 133812; MCZ 139340; Oriomo River, Abam, MCZ 129160.

Homalopsidae Bonaparte, 1845

Enhydris Sonnini and Latreille

Hydrus Schneider, 1799, 1: 233.
Enhydris Sonnini and Latreille, 1801 4: 200. Type species: *Enhydrie caerulea* = *Hydrus enhydris* Schneider (not Merrem, 1820).
Hypsirhina Wagler, 1830: 169. Type species: *Homalopsis aer* Boie, 1826: 214.
Potamophis Cantor, 1836: 139. Type species: *Potamophis lusingtorii* Cantor, 1836: 139.

CONTENT: Six species: *Enhydris chanardi*, *E. enhydris*, *E. innominata*, *E. jagorii*, *E. longicauda*, *E. subtaeniata.*

DISTRIBUTION: Eastern India and Sri Lanka eastward to Indochinese peninsula.

DIAGNOSIS: Dorsal scales in 21 rows at mid-body, reduced to 17 or 19 posteriorly, prefrontal and internasal usually contacting loreal, second pair of chin shields larger than gulars. *Myrrophis* may be most easily confused with these snakes. *Myrrophis chinensis* has 23 rows of dorsal scales, and *M. bennettii* has 21 dorsal scale rows, reduced to 17 or 15 rows at posterior body, but second pair of chin shields about the same size as the gulars. The hemipenis extends to the seventh or eighth subcaudal in *Enhydris* and to the tenth subcaudal in both species of *Myrrophis*.

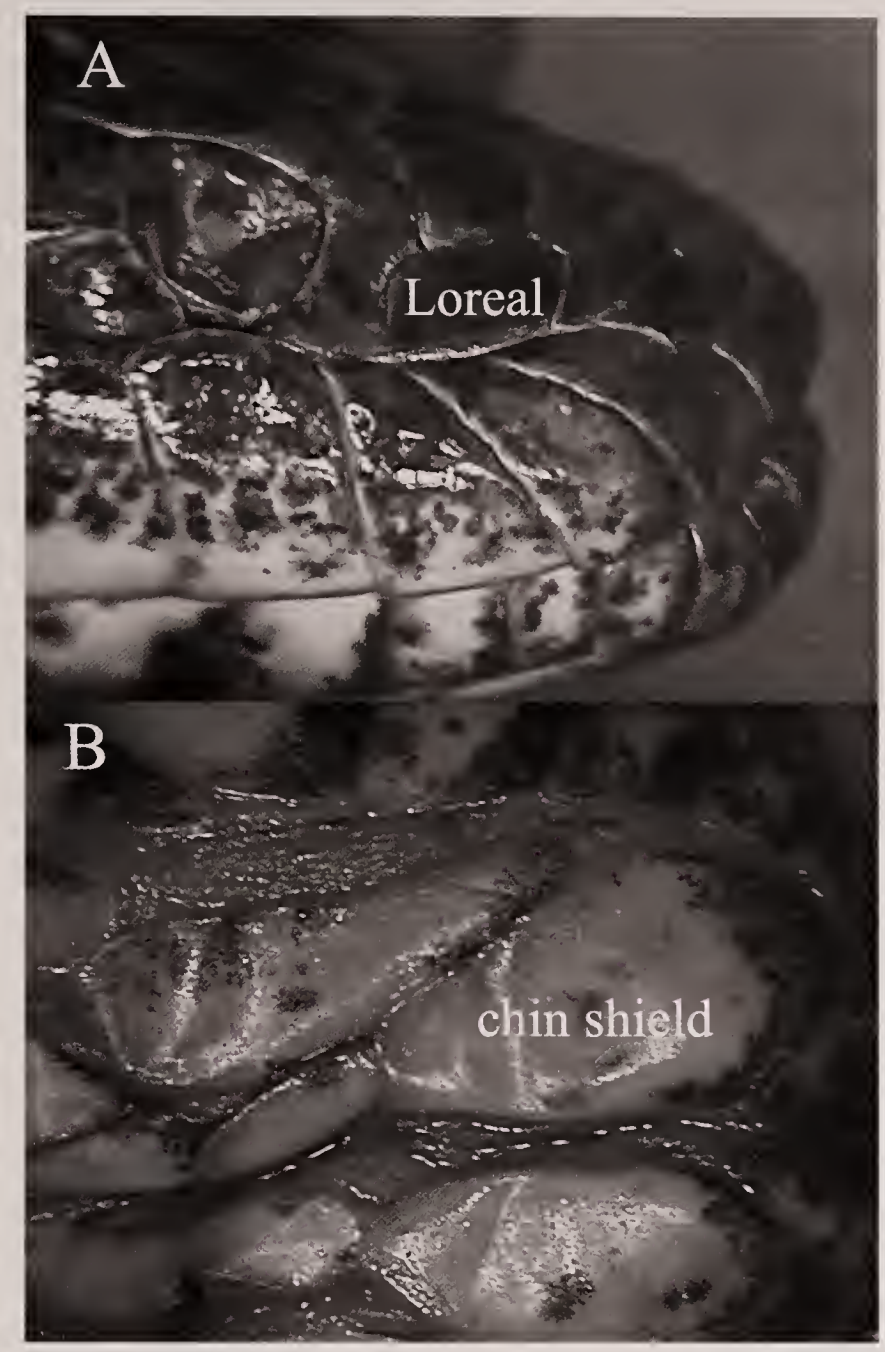


FIG. 18. *Enhydris chanardi*, UMMZ 35336, Bangkok, Thailand. **(A)** profile, **(B)** chin.

19. *Enhydris chanardi* Murphy and Voris

Chanard's Mud Snake

Figure 18

Hypsirhina jagorii: Günther, 1864: 282.
Enhydris jagorii: Smith, 1943: 384 [in part].
Enhydris chanardi Murphy and Voris, 2005: 144. Holotype: USNM 67516. Type locality: Bangkok, Thailand.

DISTRIBUTION: Restricted to vicinity of Bangkok, possibly as far west as Chantaburi, Thailand. No known extant population. A photograph of a live specimen Cox et al. (1998, p. 41) labeled as *Enhydris jagorii*. However, a photograph (<http://www.flickr.com/photos/exotarium-oberhof/8243681837/>) of a specimen reportedly from Mueang Nakhon Nayok, Nakhon Nayok in Khao Yai National Park was recently seen, and this species may be more widely distributed than previously thought.

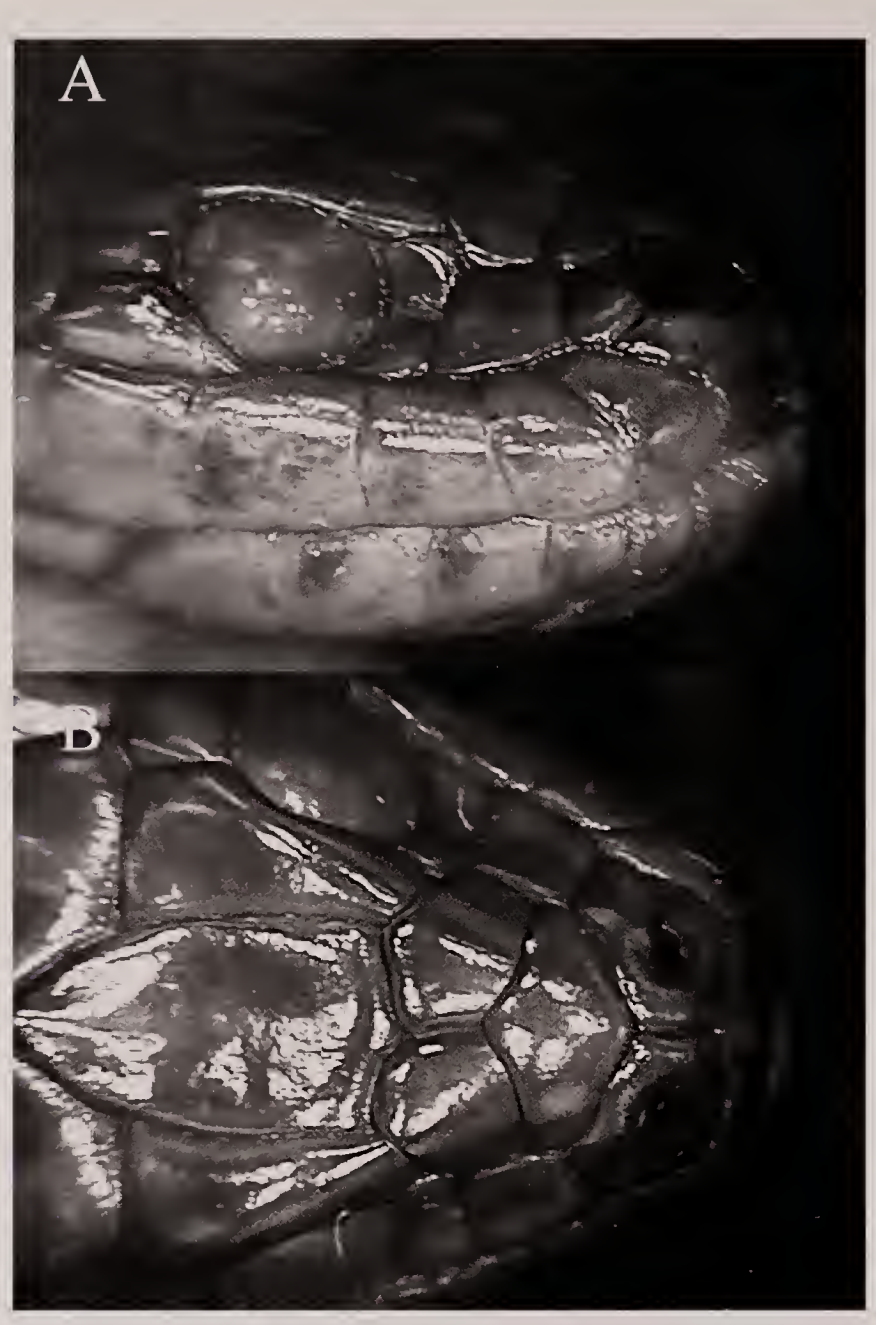


FIG. 19. *Enhydris enhydris*, FMNH 257261, Cambodia. (**A**) profile, (**B**) crown.

DIAGNOSIS: Combination of 116–125 ventral scales; two pairs of chin shields, second pair longest or equal to first pair; lateral spots rows 4–5 or 4–6; stripe on scale row three. Dorsal scales lack striations found in *E. enhydris* and *E. subtaeniata*.

SPECIMENS EXAMINED (n = 11): **THAILAND:** BMNH 98.29, 1987.1784, 98.11.8.30–1, 78.2.14.14, 97.10.8.28; CAS 135735; LSUMZ 16922; UMMZ 65336; USNM 65716, 83431.

20. *Enhydris enhydris* (Schneider)

Rainbow Mud Snake

Figure 19

Hydrus enhydris Schneider, 1799, 1: 245. Holotype: Based on illustration of Mutta Pam in Russell (1796), *Indian Serpents*, p. 35, pl. 30. Type locality: "Indiae orientalis. ... lake of Ankapilly, coast of Coromandel, India."

Enhydris caerulea Sonnini and Latreille, 1801, 4: 202. Holotype: Based on an illustration of Mutta Pam in Russell (1796), *Indian Serpents*, p. 35, pl. 30.

Coluber pythonissa Daudin, 1803c 7: 202. Holotype: Based on an illustration of "Mutta Pam" in Russell (1796), *Indian Serpents*, p. 35, pl. 30.

Homalopsis aer Boie, 1826: 214. Holotype: MNHN? Type locality: "Java."

Potamophis lusiugtonii Cantor, 1836: 139. Holotype: ZSI? Type locality: India.

Coluber aer: Eydoux and Gervais, 1837: pl. 16, figs. 2–3.

Homalopsis olivaceus Cantor, 1839: 55. Holotype: based on colored sketch in Bodleian Library. Type locality: Bengal.

Hypsirhina trilineata Gray, 1842: 66. Type locality: "China." Holotype: BMNH 1946.1.7.22. The type is a female with 21 scale rows at mid-body. The bottle also bears the following information "Ular Aer, *Hypsirhina aer*, India, 111.25.3.b."

Hypsirhina furcata Gray, 1842: 66. Type locality: "India." Syntypes: BMNH 1946.1.21.67–68. The syntypes are two neonates with 21 scale rows at mid-body.

Hypsirhina bilineata Gray, 1842: 66. Type locality: "China." Holotype: BMNH 1946.1.5.31. This is a male *Enhydris enhydris* with 21 scale rows at mid-body.

Hypsirhina aer: Gray, 1849: 72.

Homalopsis enhydris: Cantor, 1847: 99.

Hypsirhina enhydris: Duméril, Bibron, and Duméril, 1854, 7: 946.

Hypsirhina albolineata Morice, 1875: 58. Type locality: Vietnam. Syntypes: MHNL 42000343(2). The syntypes are two neonate specimens bleached from light and chemicals; both are females and have 21 scale rows at mid-body.

Hypsirhina enhydris bilineata: Lampe and Lindholm, 1902: 31.

Helicops indicus Annandale, 1905: 211. Holotype: Calcutta Museum. Type locality: Bengal.

Enhydris enhydris: Barbour, 1912: 122.

DISTRIBUTION: Widespread from eastern India to Indochina (and possibly southern China), southward to Greater Sunda Islands as far east as Borneo (Murphy, 2007a). Its presence on Sulawesi is considered doubtful by de Lang and Vogel (2005).

DIAGNOSIS: Striped species with small narrow head. The combination of 153–174 ventral scales, a pattern of longitudinal stripes, with no lateral or dorsal spots or bars, second pair of chin shields longer than the first will distinguish this snake from other *Enhydris*. It may be most easily confused with its sympatric (in the Mekong drainage) sister species, *E. subtaeniata*, which has fewer than 153 ventral scales; a pattern of spots on scale rows 4–6; and two or three pairs of chin shields. When there are two pairs, the first pair is longer than the second.

SPECIMENS EXAMINED (n = 223): **BORNEO:** ANSP 26401–02; **CAMBODIA:** FMNH 259359–67, 259372–73, 259375, 259377; **INDIA:** ANSP 5091–94; FMNH 154593, 161446, 165097–102; UMMZ 65658; **INDONESIA:** Java, FMNH 105560; **MALAYSIA:** FMNH 224199; ZRC 2.3318–19, 2.3324; **MYANMAR:** KU 92471, 92476, 92478–80, 92482–83, 92485–86, 92488, 92491, 92557; **THAILAND:** FMNH 60966–973, 60961–965, 123493, 171535, 179010–12, 179435–446, 250119–121, 252503, 252523–527, 252528–529, 252531–534, 252535–542, 252544–558, 252560–571, 252577–593, 252594–608, 252662–669, 252666–667, 252672, 252686–688, 257385–388, 257391–427, 257389–390, 257431–435; UMMZ 65337, 126093, 138285, 138286; **SRI LANKA:** CAS 12767; **VIETNAM:** FMNH 259093–100.

21. *Enhydris innominata* (Morice)

Tay Ninh Mud Snake

Figure 20

Hypsirhina innominata Morice, 1875: 58. Holotype: MHNL 42000338. Type locality: Tay-ninh, Cochin China (South Vietnam, on the Cambodian border).

Hypsirhina jagorii: Tirant, 1885: 44.

Enhydris innominata: Smith, 1929: 49.

Enhydris innominata innominata: Saint Girons, 1971: 221.

DISTRIBUTION: Lower Mekong drainage of Vietnam and possibly into Cambodia (Murphy, 2007a).

DIAGNOSIS: Extremely low ventral count (106–117), 42–56 subcaudals, highly distinctive pattern of black lateral blotches (scalloped-shaped) arise from ventral surface. These distinguish this snake from most other *Enhydris*. *Enhydris jagorii* has a higher ventral count (117–127), and smaller temporal scales. *Enhydris longicauda* has more ventral scales (122–136)

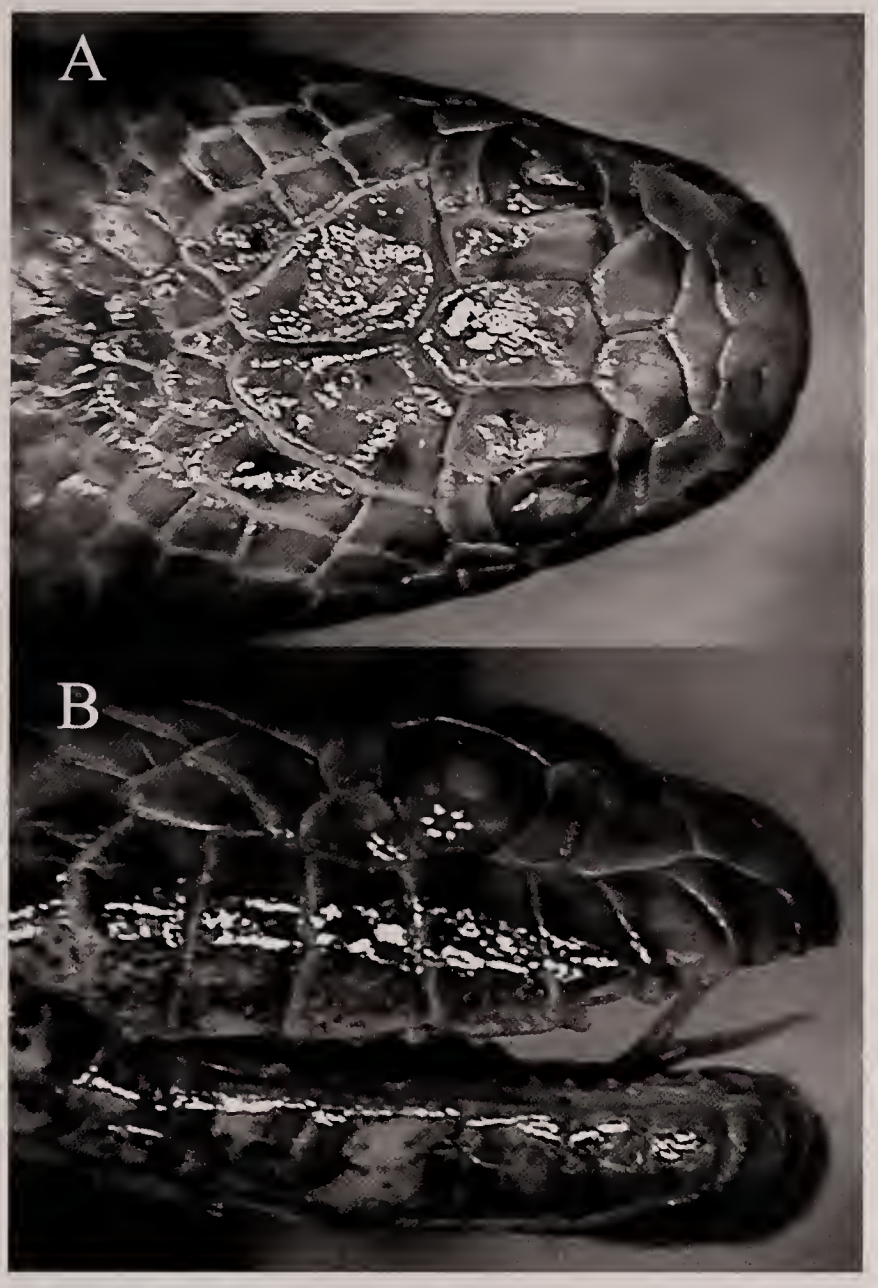


FIG. 20. *Enhydris innominata*, no data. (**A**) crown, (**B**) profile.

FIG. 21. *Enhydris jagorii*, no data. (**A**) profile, (**B**) crown.

and more subcaudal scales (52–76) than *innominata*. *Enhydris chanardi* has a higher ventral scale count (110–125), small dorsolateral spots that involve two or three scales; and larger, plate-like temporal scales. *Enhydris enhydris* and *E. subtaeniata* have stripes in their patterns and smooth, striated dorsal scales and elongated anterior chin shields. This species has smooth scales without striations.

SPECIMENS EXAMINED (n = 19): **VIETNAM:** BMNH 1938.1.13.1; FMNH 259101–07, 259247–54; LSUMZ 29599; ROM 37891, 37893.

22. *Enhydris jagorii* (Peters)

Bangkok Mud Snake

Figure 21

Hypsirhina (*Eurostus*) *jagorii* Peters, 1863: 245. Holotype: ZMA 4746. Type locality: "Siam." Restricted to the vicinity of Bangkok, Thailand, by Murphy (2007a).
Hypsirhina smithii Boulenger, 1914: 69. Type locality: Mivam Chao Phraya, Bangkok, Thailand. Holotype: BMNH 1948.1.7.27.
Enhydris smithi: Smith, 1929: 50 [a valid species *fide* Cox (1991) and Das (2010)].
Enhydris jagorii: Taylor, 1965: 917 [in part].
Enhydris innominata smithi: Saint Girons, 1971: 221.
Enhydris jagorii: Murphy, 2007a: 131.

DISTRIBUTION: Probably restricted to Thailand's Central Plain. Historical evidence suggests it occurs in the vicinity of Bangkok. Only extant population known is from the northern edge of Thailand's Central Plain (Karns et al., 2010b).

DIAGNOSIS: Dorsal scale rows 23–25 on neck, large scalloped blotches or spots on sides and dorsum, ventral scales 117–127; females have more than 50 subcaudals, males have about 68, pupil mottled and colored like scales surrounding it. Eye diameter less than diameter of nasal scale.

SPECIMENS EXAMINED (n = 10): **THAILAND:** Bangkok, BMNH 1930.1.1.3, 1948.1.2.27; Bangkok, Phra Nakhon, FMNH 179114; Hua Hin, BMNH 1928.12.18.1. No data: THNHM 0924–27; Bangkapi, THNHM no number; ZMA 4746.

23. *Enhydris longicauda* (Bourret)

Long-tailed Mud Snake

Figure 22

Hypsirhina longicauda Bourret, 1934: 20. Syntypes: MNHN 48.95, 48.96, 38.143. Type locality: Tonlé Sap, Cambodia.
Enhydris longicauda: Smith, 1943: 386.
Enhydris innominata longicauda: Saint Girons, 1971: 221.

DISTRIBUTION: Restricted to Tonlé Sap area, Cambodia (Murphy, 2007a).

DIAGNOSIS: Ventral scales 124–133, dorsolateral pattern mostly black-purple with large, lateral, dark scalloped blotches. In color pattern it is most similar to *Enhydris jagorii* and *E. innominata*. However, both *jagorii* and *innominata* demonstrate sexual dimorphism of the subcaudal scales and show less lateral compression of the tail. These two species also have different ventral scale count ranges, *E. jagorii* 117–

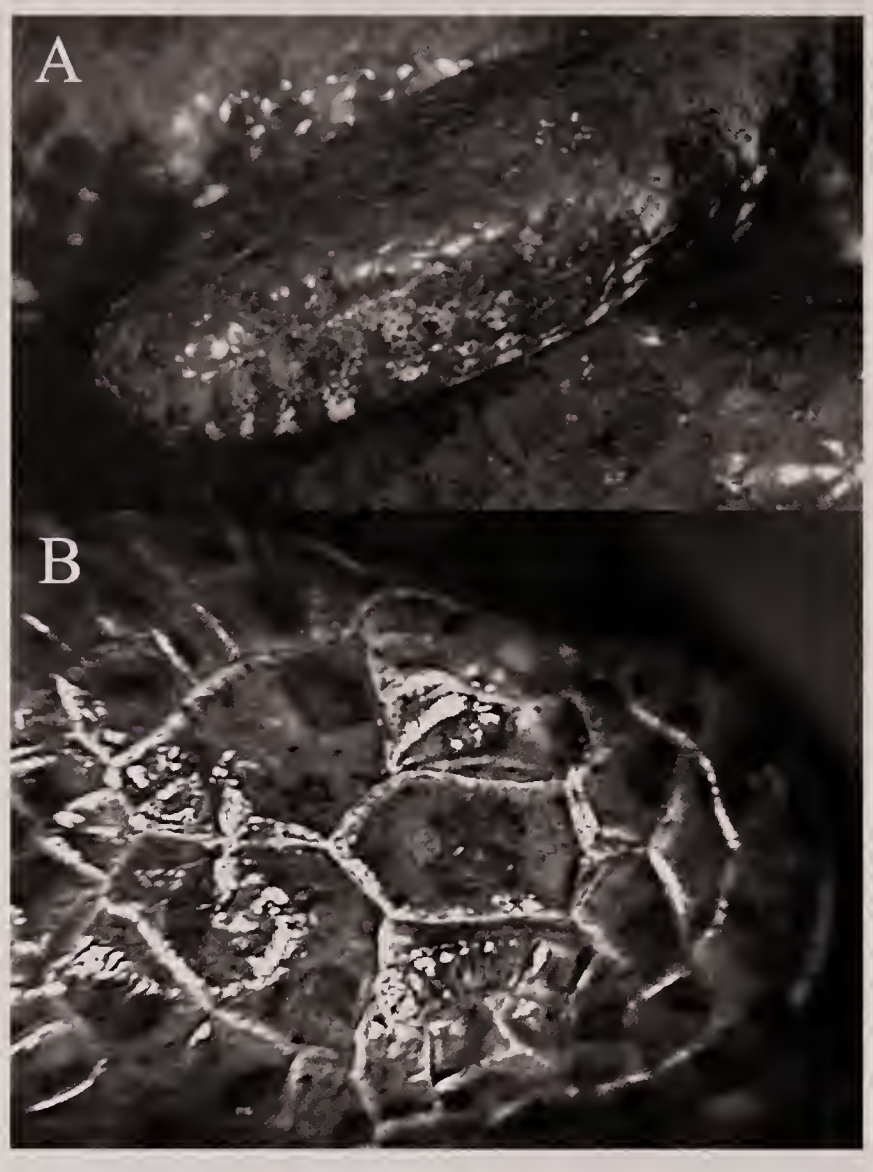


FIG. 22. *Enhydris longicauda*, no data. (**A**) profile, (**B**) crown.

FIG. 23. *Enhydris subtaeniata*, FMNH 259085, Vietnam. (**A**) profile, (**B**) crown.

127, and *E. innominata* 106–117, *E. chanardi* has fewer scale rows (20–22) around the neck compared to *E. longicauda* (23–25), fewer ventral scales (110–122), and a distinctive pattern of lateral spots involving 2–4 scales on scale rows 4–6. *Enhydris enhydris* and *E. subtaeniata* have a dorsal pattern of longitudinal stripes, but *E. subtaeniata*'s pattern includes lateral spots on scale rows 4–6, and a ventral scale count range of 136–153, *E. enhydris* has more than 153 ventrals. *Enhydris enhydris* and *E. subtaeniata* have smooth, striated scales, while *longicauda*, *chanardi*, *jagorii*, and *innominata* do not.

SPECIMENS EXAMINED (n = 37): **CAMBODIA:** FMNH 257254–260, 259346–358; MNHN 1938.143, 1948.96, 1970.526–541.

24. *Enhydris subtaeniata* (Bourret)

Mekong Mud Snake

Figure 23

Hypsirhina jagorii: Morice, 1875: 58.
Hypsirhina Iagorii (*sic*): Mocquard, 1907: 51.
Hypsirhina enhydris subtaeniata Bourret, 1934: 9, fig. 3. Lectotype: MNHN 1958.04.74 designated by Murphy (2007a). Type locality: Kompong Speu, Cambodia.
Enhydris jagorii: Smith, 1943: 384.
Enhydris jagorii: Taylor, 1965: 917 [in part].
Hypsirhina enhydris enhydris: Deuve, 1970: 173, pl. 18, figs. 4–5.

DISTRIBUTION: Mekong drainage from Laos southward; outside the Mekong drainage at Bung Boraphet, Thailand (Lukoschek et al., 2011).

DIAGNOSIS: Ventral scales number 136–153; color pattern contains stripes and lateral spots. Presence of lateral spots and ventral counts separate this species from its sister species, *E. enhydris*, which has 153–174 ventral scales. *Enhydris subtaeniata* has two or three pairs of elongated chin shields, rather than the flared condition found in *jagorii* and its relatives (*chanardi*, *innominata*, *longicauda*). Both *E. enhydris* and *E. subtaeniata* have dorsal scales with striations, which do not occur in other members of the genus.

SPECIMENS EXAMINED (n = 26): **CAMBODIA:** FMNH 259079–81, 259230, 259232, 259234–38, 259240–41; **THAILAND:** AMNH 115882–85; CAS 73705, 101602; FMNH 154785, 178434, 179115, 210133; MCZ 8382; USNM 53442; **VIETNAM:** FMNH 259244, MCZ 4070.

Homalopsidae Bonaparte, 1845

Erpeton Lácèpede

Erpeton Lácèpede, 1801: 169.
Rhinopirus Merrem, 1820: 81. [Substitute name for *Erpeton*.]
Herpeton Wagler, 1830: 169. [Emendation.]
Homalopsis Schlegel, 1837a [in part], 2: 332.

TYPE SPECIES: *Erpeton tentaculatus*.

CONTENT: One species.

DISTRIBUTION: The coastal plain of the Gulf of Thailand (Murphy, 2007a).

DIAGNOSIS: Prominent paired rostral appendages make this most easily recognized snake species on the planet.

FIG. 24. *Erpeton tentaculatus*, FMNH 2552504, southern Thailand. (**A**) profile, (**B**) crown.

25. *Erpeton tentaculatus* Lácèpede

Tentacled Snake

Figure 24

Erpeton tentaculatus Lácèpede, 1801: 169. Holotype: MNHN. Type locality: none given.
Rhinopirus tentaculatus: Merrem, 1820: 82.
Homalopsis herpeton: Schlegel, 1837a, 2: 359.
Herpeton tentaculatum: Jan and Sordelli, 1860: 1, pl. 1.
Herpeton herpeton: Giebel, 1861: 110.

TYPE LOCALITY: None given.

DISTRIBUTION: Southern Thailand, Cambodia, southern Vietnam (Murphy, 2007a).

DIAGNOSIS: Prominent paired rostral appendages; dorsal scales in 34–39 at mid-body, heavily keeled; ventrals very narrow with keel on each side (left and right) readily separate this snake from all other homalopsids.

SPECIMENS EXAMINED (n = 26): **CAMBODIA:** FMNH 259079–81, 259230, 259232, 259234–38, 259240–41; **THAILAND:** AMNH 115882–85; CAS 73705, 101602; FMNH 154785, 178434, 179115, 210133; MCZ 8382; USNM 53442; **VIETNAM:** FMNH 259244, MCZ 4070.

Homalopsidae Bonaparte, 1845

Ferania Gray

Homalopsis Schlegel, 1837a,b: 349, pl. 13, figs. 4–5.
Ferania Gray, 1842: 67.
Trigonurus Duméril, Bibron, and Duméril, 1854, 7: 960.
Hypsirhina Jan, 1863: 78.
Feranioides Carlleyle, 1869: 96.
Enhydris Mell, 1929: 253.

TYPE SPECIES: *Ferania sieboldii* by monotypy.

CONTENT: One species.

NOTE: This genus was revalidated by Kumar et al. (2012).

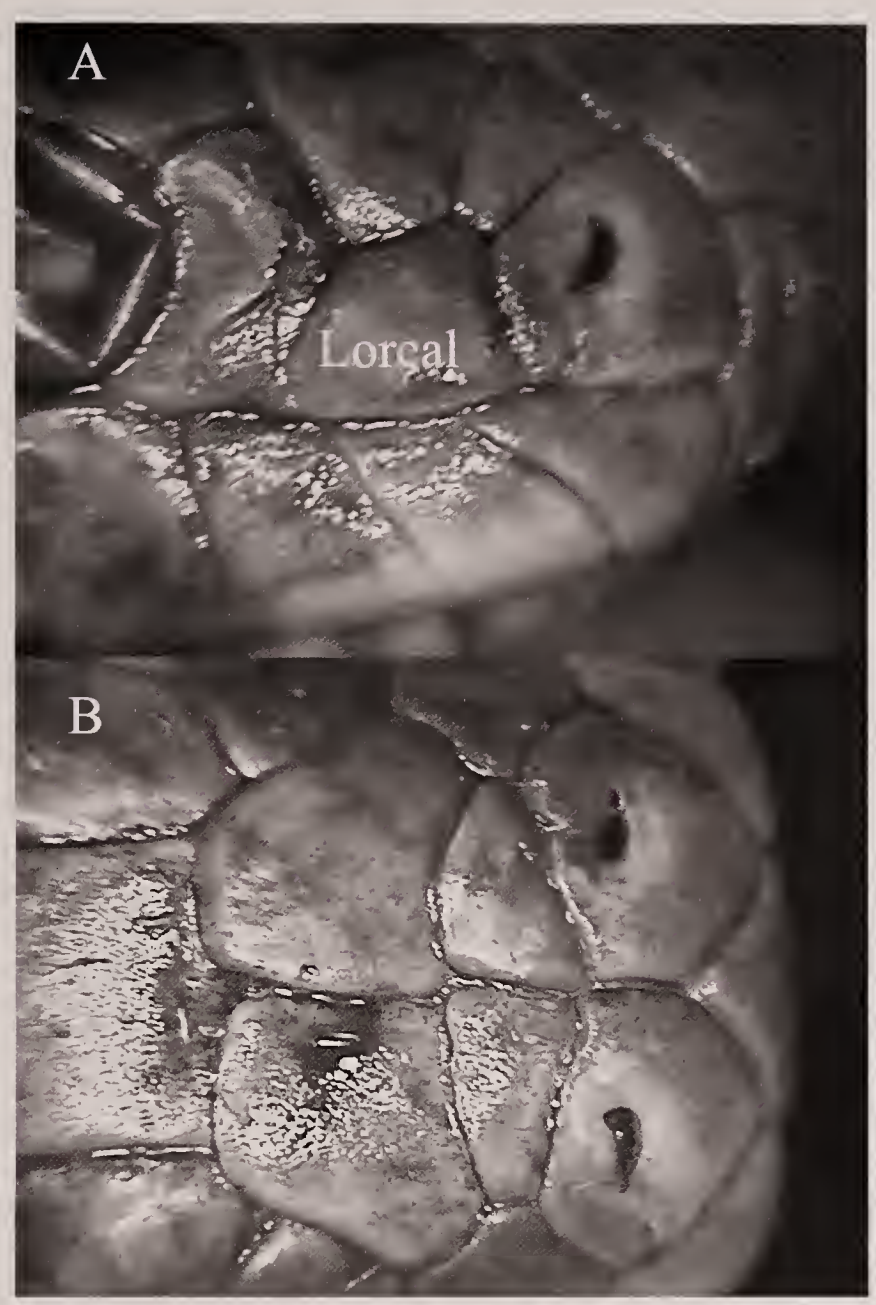


FIG. 25. *Ferania sieboldii*, RMNH.RENA 1168 holotype. (**A**) loreal region (**B**) anterior snout.

DISTRIBUTION: Northwest peninsular India, probably Bangladesh and Nepal (Whitaker & Captain, 2004; Murphy, 2007a).

DIAGNOSIS: Robust body, dorsal scales in 27–29 rows; divided internasal; two postoculars; no suboculars; 7–9 upper labials; last one or two upper labials divided; a dorsal pattern of transverse bands, mottled venter; hemipenis extends to the 14th subcaudal.

26. *Ferania sieboldii* (Gray)

Siebold's Mud Snake

Figure 25

Homalopsis sieboldii Schlegel, 1837a, 2: 349, pl. 13, figs. 4–5. Holotype: NRM 1168. Type locality: Bengal.
Ferania sieboldii: Gray, 1842: 67.
Trigonurus sieboldii: Duméril, Bibron, and Duméril, 1854, 7: 960.
Hypsirhina sieboldii: Jan, 1863: 78.
Feraniodes jammaeticus Carlleyle, 1869: 196. Holotype: ZSI. Type locality: Jumma River, near Agra.
Enhydris sieboldii: Mell, 1929: 253.

DISTRIBUTION: Northwest peninsular India, Bangladesh, and Nepal; endemic to the Jumma, Ganges, and Brahmaputra river drainages. However, Whitaker and Captain (2004) report it from Nepal, Bangladesh, and Myanmar.

DIAGNOSIS: Dorsal scale rows 27–29; ventrals 143–156; subcaudals 28–56; prefrontals contact loreal; upper labials in orbit 4 or 4–5; divided internasal; two postoculars; no suboculars;

7–9 upper labials; last one or two upper labials divided; 11–13 lower labials; hemipenis extends to 14th subcaudal.

Specimens Examined (n = 9): **Bangladesh:** bm 1940.3.9.9; ummz 172562; **India:** bmnh 1907.2.14.32, 1908.6.32, 67–68, 87.12.23.1; mcz 22384; rmnh.rena 1168 (type specimen); locality data in error, bmnh 60.3.19.1185.

Homalopsidae Bonaparte, 1845

Fordonia Gray

Homalopsis Schlegel, 1837a, 2: 332.
Fordonia Gray, 1842: 67.
Hydropsis Fitzinger, 1843: 25.
Hemiodontus Duméril, 1853: 494.

Type Species: *Hemiodontus leucobalia* Schlegel by monotypy.

Content: One species.

Distribution: Mainland coastal habitats from Bangladesh, Myanmar, Thailand, peninsular Malaysia, and southern Vietnam. Also: Singapore, Nicobar Islands, and the Greater Sunda Islands eastward to New Guinea and northern Queensland, Australia (Murphy, 2007a).

Diagnosis: Upper labials 5 or 6, third enters orbit; loreal usually absent; scales in ocular ring plate-like; frontal shorter than parietal scales; rear fangs robust, grooved, dorsal pattern uniform slate gray or mottled with red, brown, black, and white (or some combination of these colors).

27. *Fordonia leucobalia* (Schlegel)

Crab-eating Snake

Figure 26

Homalopsis leucobalia Schlegel, 1837a, 2: 345. Holotype: NRM 1161. Type locality: Timor.
Fordonia leucobalia: Gray, 1842: 67.
Fordonia unicolor Gray, 1849: 77. Syntypes: bmnh 111.22.2.a–b. Type locality: Borneo.
Hemiodontus leucobalia: Duméril, Bibron, and Duméril, 1854, 7: 884.
Hemiodontus chalybaeus Jan, 1863: 79. Holotype: probably in the msng Type locality: Singapore.
Fordonia bicolor Theobald, 1868: 56. Holotype: apparently lost. Type locality: near Rangoon (= Yangon, southern Myanmar).
Fordonia papuensis Macleay, 1877: 35. Syntypes: ams R31903–1905. Type locality: Katow Binaturi River, New Guinea.
Fordonia variabilis Macleay, 1877: 219. Syntypes: mamu, Sydney? Type locality: Port Darwin, Australia.

Distribution: Mainland coastal habitats from Bangladesh, Myanmar, Thailand, peninsular Malaysia, and southern Vietnam. Also Singapore, Nicobar Islands, and Greater Sunda Islands eastward to New Guinea and northern Queensland, Australia (Murphy, 2007a).

Diagnosis: Dorsal scales in 25–29 rows at mid-body; five or six upper labials, third enters orbit; loreal usually absent; scales in ocular ring plate-like; frontal shorter than parietal; rear fangs robust, grooved; chin shields small, usually two pairs (can number 1–3), second pair contacting each other (a trait that will separate this snake from all other homalopsids).

Specimens Examined (n = 24): **Malaysia:** fmnh 217450, 268887–89; **New Guinea:** cas 12390, 121219, 127369, 127378, 132005–06, 132017, 132022, 132024, 132025–226, 132216, 132030–31, 132045–6, 135492, 135497; mcz R129927; **Singapore:** zrc 2–3301, 2–3299.

Homalopsidae Bonaparte, 1845

Gerarda Gray

Gerarda Gray, 1849: 77.
Campylodon Duméril, 1853: 499. Type species: *Campylodon prevostianum* Duméril, Bibron, and Duméril, 1854.

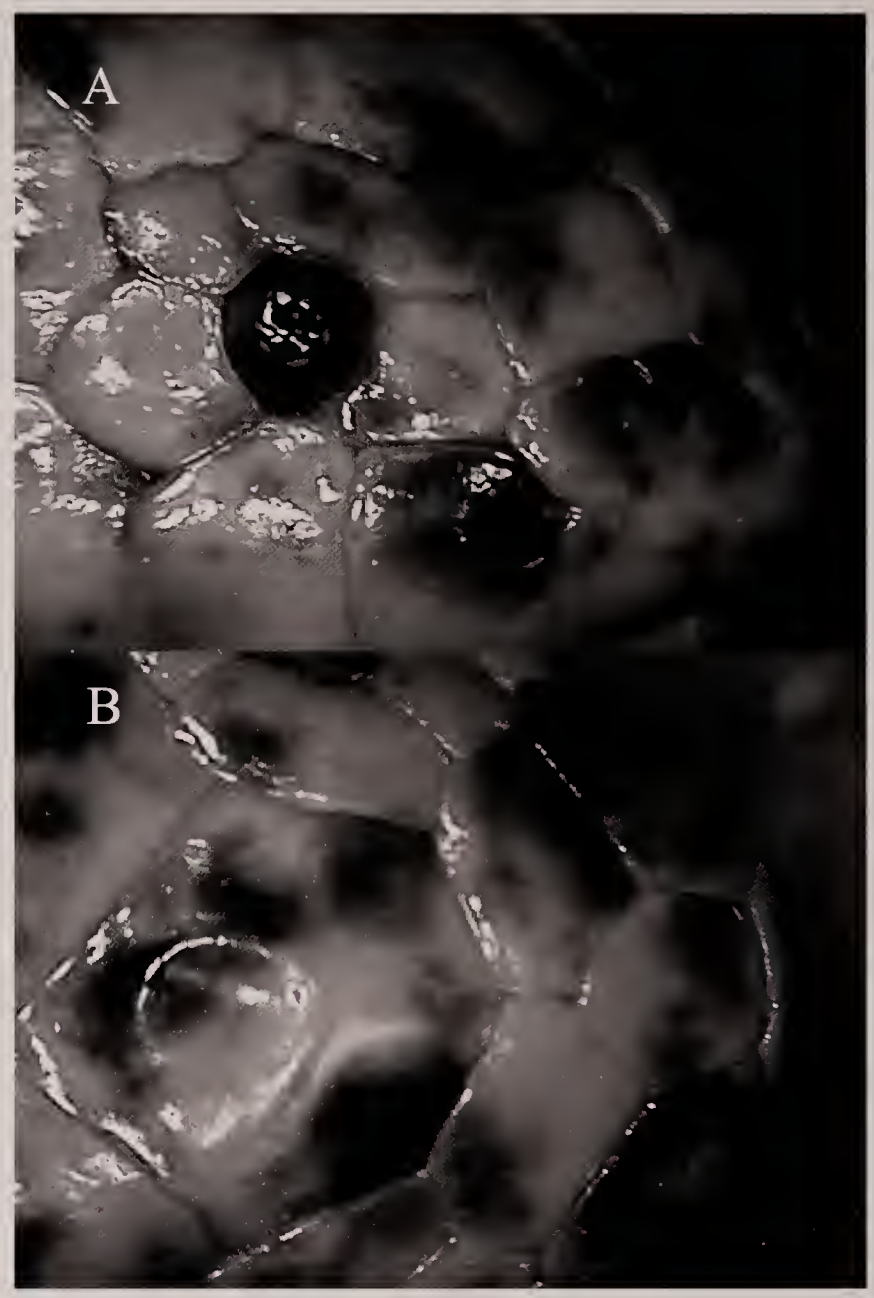


Fig. 26. *Fordonia leucobalia*, ams R66780, Australia. (**A**) profile, (**B**) anterior snout.

Heleophis Müller, 1884: 286. Type species: *Heleophis flavescens* Müller.
Gerardia Boulenger, 1890: 397 [emendation].

Type Species: *Coluber* (*Homalopsis*) *prevostianus* Eydoux and Gervais by monotypy.

Content: One species, *Gerarda prevostiana.*

Distribution: Widespread from vicinity of Gulf of Kutch, India, eastward to Sri Lanka, Myanmar, Thailand, Cambodia, Malaysia, the Philippines; probably also widespread in the Indonesian Archipelago, but specimens are absent due to the coastal habitat this snake uses (Murphy, 2007a; Vyas et al., 2013).

Diagnosis: Nasal scales separated by the internasal, dorsal scales smooth in 17 rows at mid-body; and loreal scale present. This monotypic genus is perhaps most easily mistaken for its sister lineage *Fordonia*, which has 25–29 scale rows at mid-body.

28. *Gerarda prevostiana* (Eydoux and Gervais)

Gerard's Water Snake

Figure 27

Coluber (*Homalopsis*) *prevostianus* Eydoux and Gervais, 1837: 5, pl. 15. Holotype: unknown. Type locality: Manila, Philippines.
Gerarda bicolor Gray, 1849: 77. Holotype: bmnh 1946.1.2.33. Type locality: West Indies [in error].
Campylodon prevostianum: Duméril, Bibron, and Duméril, 1854, 7: 946.

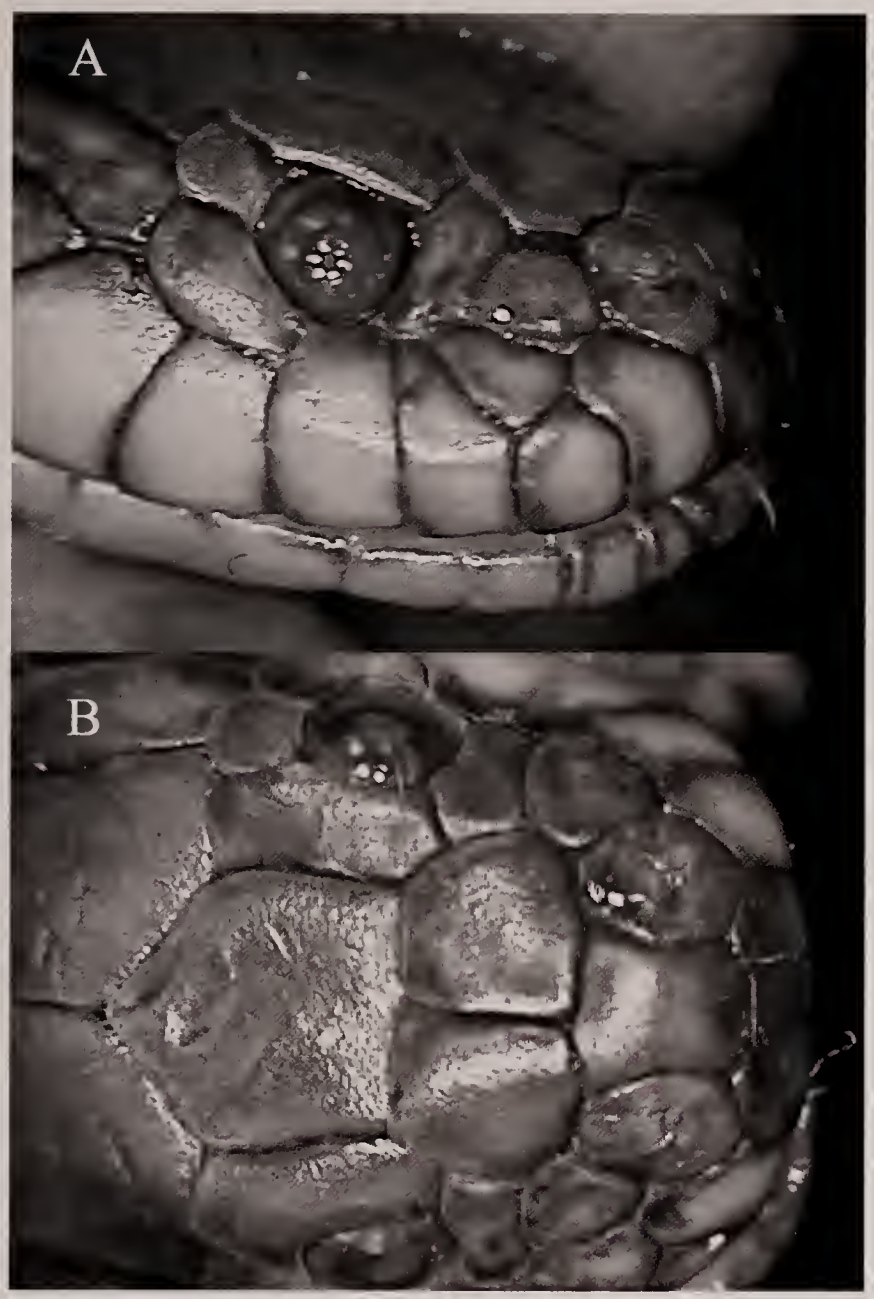


FIG. 27. *Gerarda prevostiana*, MCZ 74092, Thailand. (**A**) profile, (**B**) crown.

Helipophis flavescens Müller, 1884: 286. Holotype: NMBA 1771. Type locality: "East Indies."
Gerardia prevostiana: Boulenger, 1890: 379.
Gerarda prevostiana: Smith, 1930: 62.

DISTRIBUTION: Widespread from vicinity of Gulf of Kutch, India, eastward to Sri Lanka, Myanmar, Thailand, Cambodia, peninsular Malaysia, and the Philippines; probably also widespread in the Indonesian Archipelago, but specimens are absent due to the coastal habitat and secretive habits of this snake.

DIAGNOSIS: Relatively small, slender, dorsal scales in 17 rows at mid-body; loreal present, in contact with upper labials 1–3; of 7–8 upper labials, the fourth enters orbit; postoculars are usually two, with bottom scale extending partially under the eye; first pair of chin shields large, second pair much smaller and separated by a pair of smaller scales.

SPECIMENS EXAMINED (n = 12): **INDIA:** BMNH 1904.10.18.7, 1937.9.7.1; **MYANMAR:** BMNH 1908.6.23.73; **SRI LANKA:** FMNH 121532; **THAILAND:** FMNH 179102–4, 17106–08; MCZ 74092. No data: BMNH 1946.1.2.33.

Homalopsidae Bonaparte, 1845

Gyiophis new genus

Hypsirhinia Blanford, 1879b: 130.
Enhydris Smith, 1943: 387.

TYPE SPECIES: *Hypsirhina maculosa.*

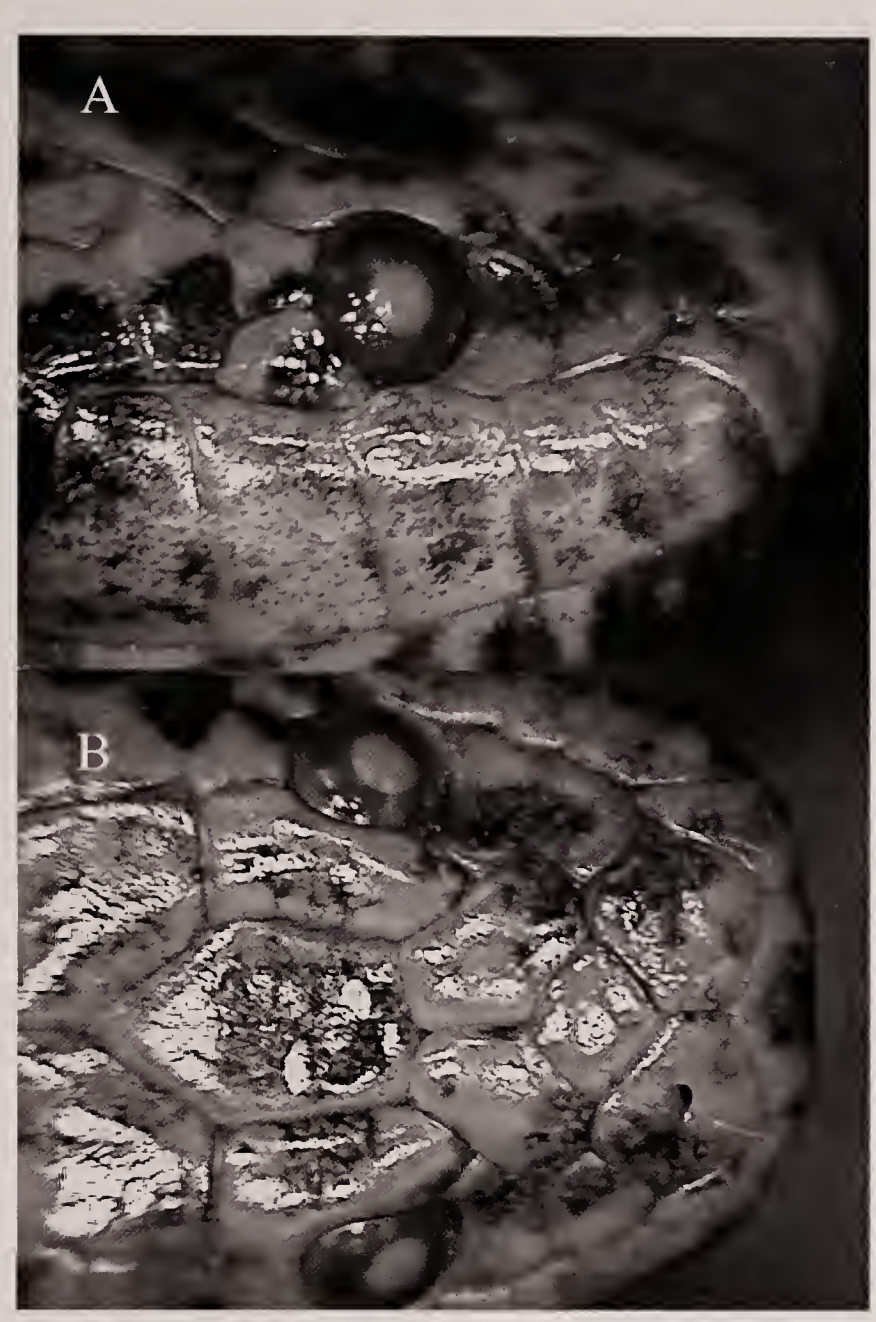


FIG. 28. *Gyiophis maculosa*, BMNH 1913.6.12.1, lectotype. Myanmar. (**A**) profile, (**B**) crown.

CONTENT: Two species: *G. maculosa*, *G. vorisi.*

DISTRIBUTION: Known only from the Ayeyarwady River Delta, Myanmar (Murphy, 2007b).

DIAGNOSIS: Small to medium sized, with the combination of smooth scales, nasals in contact, 25 scale rows at mid-body, first three upper labials contact loreal, fourth upper labial in orbit. May be most easily confused with the snake formerly known as *Enhydris pahangensis* Tweedie, which has 25 dorsal scales rows, but has the first upper labial excluded from loreal.

ETYMOLOGY: Named in honor of Ko Ko Gyi, the Burmese herpetologist who revised the homalopsids. Gender of the genus is feminine.

29. *Gyiophis maculosa* (Blanford)

Blanford's Mud Snake

Figure 28

Hypsirhina maculata Blanford, 1879b: 130. Holotype: Das et al. (1998: 39) gives the number as ZSI 8207. Type locality: In 1879a Blanford gave the type locality as "Bassein in Pegu"; in 1879b he states Pegu ... in the neighbourhood of Bassein." Das et al. (1998: 39) suggests, "Pegu ... (probably in the neighborhood of Bassein) is Bajo, in southern Myanmar."
Hypsirhina maculosa: Blanford, 1881: 226.
Hypsirhina blanfordii: Boulenger, 1890: 377.
Enhydris maculosa: Smith, 1943: 387.

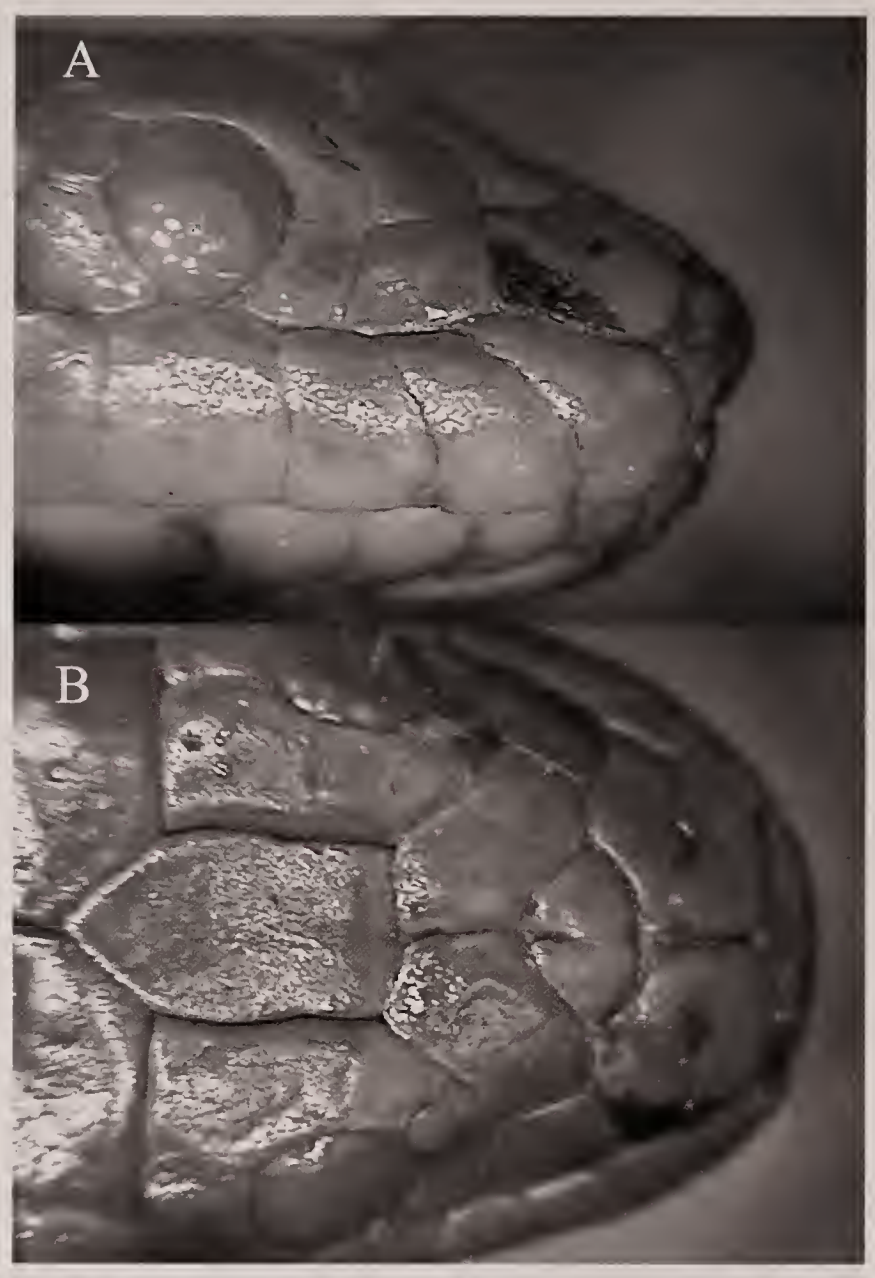


FIG. 29. *Gyiophis vorisi*, KU 92465, Myanmar. (**A**) profile, (**B**) crown.

DISTRIBUTION: Known only from Bajo in Ayeyarwady River Delta, Myanmar (Murphy, 2007b).

DIAGNOSIS: This species has three pairs of chin shields, 123 ventrals, and a dorsal pattern of blotches without a stripe. All of which will separate it from *G. vorisi*, which has more than 142 ventrals and a stripe on scale rows 2–4.

SPECIMEN EXAMINED (n = 1): No data: BMNH 1913.6.12.1.

30. *Gyiophis vorisi* (Murphy)

Voris' Mud Snake

Figure 29

Enhydris maculosa: Gyi, 1970: 114 [in part], fig. 16.
Enhydris vorisi Murphy, 2007b: 171. Holotype: KU 92465. Type locality: Maubin, Irrawaddy Division, Myanmar.

DISTRIBUTION: Known only from the vicinity of Maubin in the Ayeyarwady River Delta, Myanmar (Murphy, 2007b).

DIAGNOSIS: Two pairs of chin shields, 142 or more ventrals, dorsal pattern of stripes that are lateral and dorsal, and may break up into smaller spots. All of these traits separate it from *G. maculosa*, a species with which it has been long confused.

SPECIMENS EXAMINED (n = 10): **MYANMAR:** Maubin, BMNH 1972.887–888; KU 92364–69, 92397. No data: MCZ 18390.

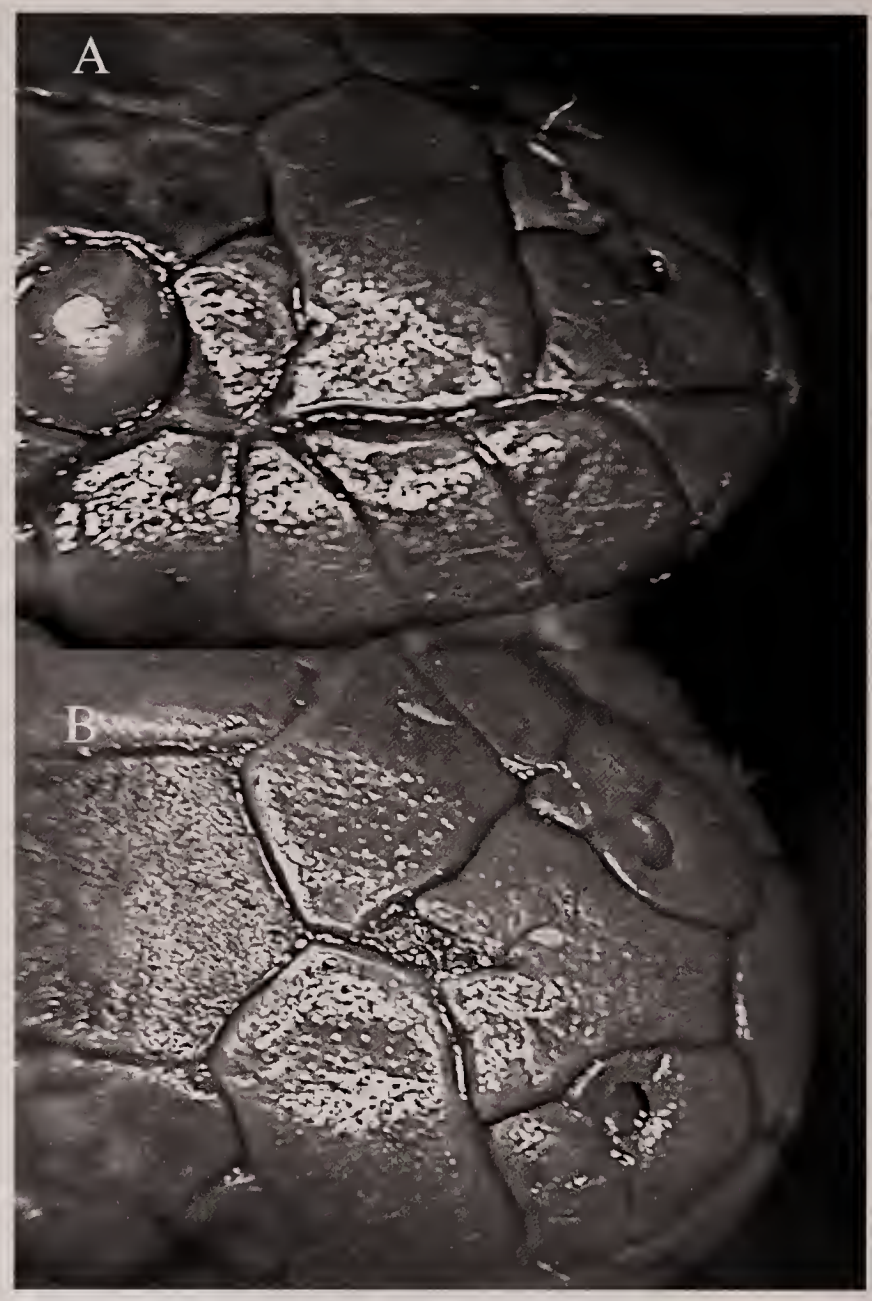


FIG. 30. *Heurnia ventromaculata*, ZMA 11066, holotype. Mamberamo River, Papua Province, Indonesia. (**A**) profile, (**B**) crown.

Homalopsidae Bonaparte, 1845

Heurnia de Jong

Heurnia de Jong, 1926: 302.

TYPE SPECIES: *Heurnia ventromaculata* by monotypy.

CONTENT: One species: *Heurnia ventromaculata.*

DISTRIBUTION: Pionierbivak, Mamberano River, West Papua, Indonesia (de Jong, 1926).

DIAGNOSIS: Internasal separates nasals, loreal and prefrontals fused on each side with narrow contact between right and left sides on mid-line of snout. No other homalopsid snake has this combination of characters.

31. *Heurnia ventromaculata* de Jong

Mamberano Mud Snake

Figure 30

Heurnia ventromaculata de Jong, 1926: 302. Holotype: ZMA 11066. Type locality: Pionierbivak, Mamberano River, northern New Guinea.

DISTRIBUTION: Known only from type locality in northwestern West Papua, Indonesia (de Jong, 1926).

DIAGNOSIS: Dorsal scales in 27 rows; the internasal is large; prefrontals are fused with the loreals and separate the internasal scale from the frontal; lower postocular extends under the orbit; upper labials eight or nine, with the fifth entering the orbit.

SPECIMEN EXAMINED (n = 1): **INDONESIA:** ZMA 11066.

FIG. 31. *Homalophis doriae*, FMNH 138666, Sarawak, east Malaysia. (**A**) profile, (**B**) crown.

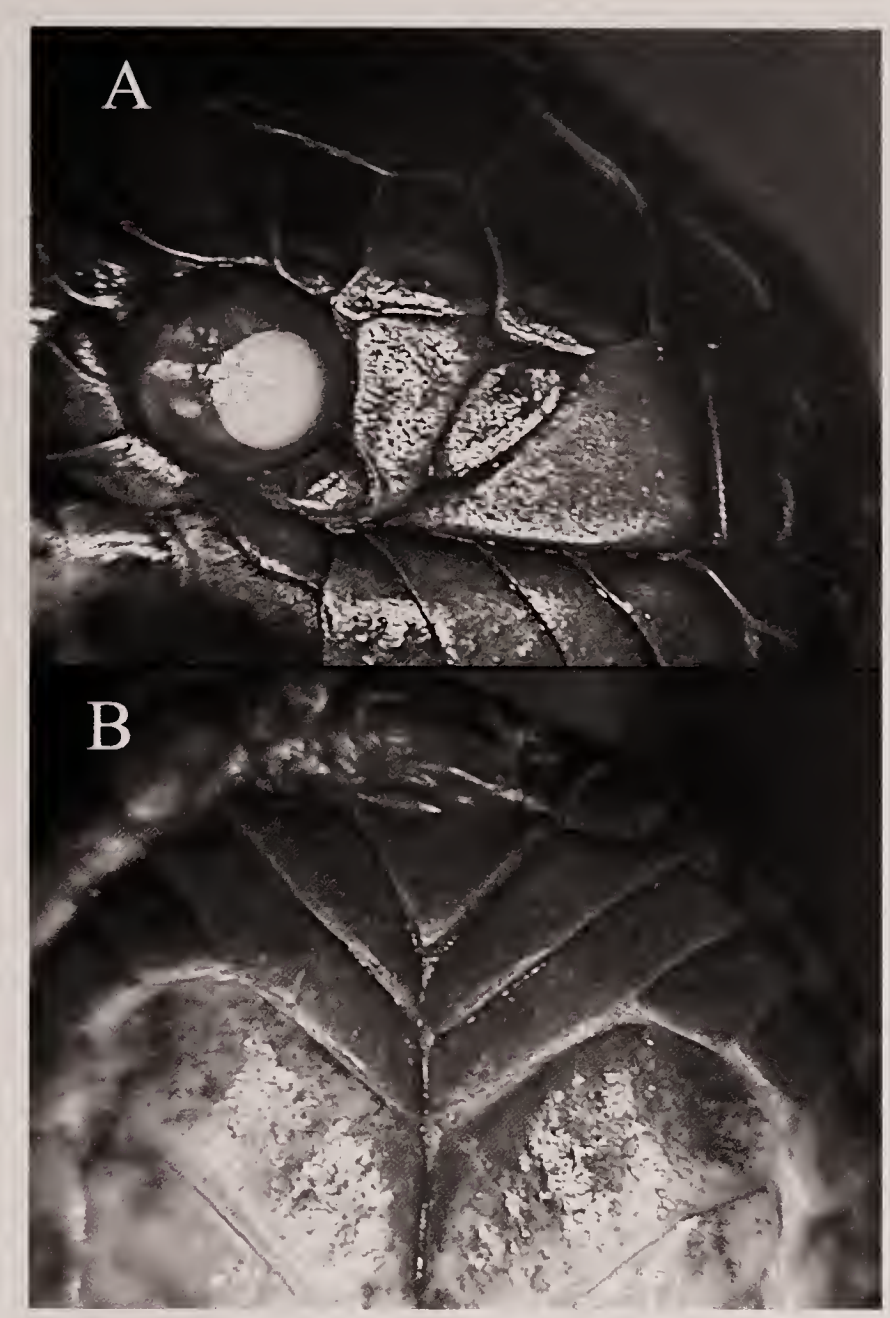


FIG. 32. *Homalophis gyii*, ZMA 65824, Kapuas River, Kalimantan, Indonesia. (**A**) profile, (**B**) chin.

Homalopsidae Bonaparte, 1845

Homalophis Peters

Homalophis Peters, 1871: 577.
Hypsirhina Boulenger, 1893, 3: 13.
Enhydris Haas, 1950: 576.

TYPE SPECIES: *Homalophis doriae* by monotypy.

CONTENT: Two species: *H. doriae*, *H. gyii.*

DISTRIBUTION: Borneo (Murphy, 2007a).

DIAGNOSIS: Large bodied, smooth scales; nasal scales in contact; 25–33 rows of dorsal scales, subocular scales, divided internasal; first labial does not contact loreal; 2–4 pairs of chin shields, 2–3 supraoculars; 2–3 postoculars; 13–15 upper labials, upper labials behind eye are horizontally divided into three tiers; lower labials 15–20, dorsum uniform brown or gray with red or yellow ventral surface.

32. *Homalophis doriae* Peters

Sarawak Mud Snake

Figure 31

Homalophis doriae Peters, 1871: 577. Syntypes: MSNG CE 30665 and ZMB 7120. Type locality: Sarawak, Borneo.
Hypsirhina doriae: Boulenger, 1893, 3: 13.
Enhydris doriae: Haas, 1950: 576.

DIAGNOSIS: Dorsal scales in 29–33 rows at mid-body; subocular scales present; 11–16 upper labials with last 5–9 horizontally divided. It may be most easily confused with *H. gyii*, which has 25–27 scale rows at mid-body and more than 153 ventrals.

DISTRIBUTION: Known only from Borneo (Murphy, 2007a).

SPECIMENS EXAMINED (n = 21): **INDONESIA:** UMMZ 65864; **MALAYSIA:** Sabah, FMNH 14919; SSM Rep.0.322; Sarawak, FMNH 38665, 67267, 129119–20, 131723–30, 138665, 138666, 145704, 148904; MCZ 5240, 11277.

33. *Homalophis gyii* (Murphy, Voris, and Auliya)

Kapuas Mud Snake

Figure 32

Homalophis gyii Murphy, Voris, and Auliya, 2005: 116. Holotype: ZFMK 65824. Type locality: Kalbar, Sungei Kapuas, near Putussibau.

DIAGNOSIS: Dorsal scales in 25–27 rows at mid-body; subocular scales present; 15–16 upper labials, ones below and behind eye horizontally divided. It may be most easily confused with *H. doriae*, which has 29–33 scale rows at mid-body, and fewer than 153 ventrals.

DISTRIBUTION: Known only from the Kapuas River drainage in Kalimantan, Indonesia (Murphy, 2007a).

SPECIMENS EXAMINED (n = 3): **INDONESIA:** ANSP 26411; ZFMK 65824–5.

Homalopsidae Bonaparte, 1845

Homalopsis Kuhl and Hasselt

Homalopsis Kuhl and Van Hasselt, 1822: 101. Type species: *Coluber horridus* Daudin.
Pythonia Blyth, 1859: 297. Type species: *Pythonia semizonata* Blyth.

Diagnosis: Nasal scales in contact, frontal and parietal tend to be entire or slightly fragmented; 33–49 rows of dorsal scales at mid-body; some upper labials behind eye horizontally divided into three tiers of scales. Dorsal pattern composed of transverse bands, may also be uniform dark brown or black.

Distribution: Nepal, northeast India, westward to Indochina, southward into the Indonesian Archipelago.

Content: Five species: *H. buccata*, *H. hardwickii*, *H. mereljcoxi*, *H. nigroventralis*, *H. semizonata*.

34. *Homalopsis buccata* (Linnaeus)

Linne's Water Snake

Figure 33

Coluber buccatus Linnaeus 1758: 217. Holotype: lost (Andersson, 1899). Type locality: "Indiis." Murphy et al. (2012c) selected FMNH 250114 as the lectotype. Selection was based on the type locality "Indiis" interpreted to mean the East Indies, now Indonesian Archipelago. Type locality is Singapore.
Coluber monilis Linnaeus, 1758: 221. Type locality: "America," in error.
Vipera buccata: Daudin, 1803a, 6: 220.
Coluber horridus Daudin, 1803b, 7: 71. Type locality: "Amerique, selon Seba," in error.
Homalopsis monilis: Boie, 1827: 521.
Homalopsis buccata: Schlegel, 1837a: 2, pl. 13, figs. 1–5.

Distribution: Extreme southern Thailand, peninsular Malaysia, Indonesian Archipelago from Sumatra to Borneo (Murphy et al., 2012c).

Diagnosis: Upper labials 1–4 contact single loreal; two prefrontals; 33–40 dorsal scale rows at mid-body, usually reduced to fewer than 30 posteriorly; one postocular plus a postsubocular; 12 (11–14) upper labials; ventral count fewer than 166. *Homalopsis hardwickii* has a divided loreal; *H. nigroventralis* has upper labials 1–3 contacting the loreal; *H. semizonata* has a divided or fragmented loreal contacting upper labials 1–4 or 1–5 and three prefrontals; *H. mereljcoxi*, has a single loreal contacting upper labials 1–4, scale rows at mid-body 40–47, reduced to 30 or more posteriorly.

Specimens Examined (n = 36): **Indonesia:** Java, Buitenzorg, MCZ 76252–59; Salatiga, CAS 145591, FMNH 105682; Sumatra, Little Siak River, USNM 37813, no specific locality 55325–330; **Malaysia:** Johore, FMNH 161283, 183771, 218877, 229810, 229813–17, 229820, 229823; ZRC 2–3346, 2–3348; Perak, CAS 13066; **Singapore:** CAS 8538–39; FMNH 250114; ZRC 2–3338–39; **Thailand:** Pattani, FMNH 179316–18.

35. *Homalopsis hardwickii* (Gray)

Hardwick's Water Snake

Homalopsis hardwickii Gray, 1842: 65.
Homalopsis buccata: Günther, 1864: 285. Type locality: "India." Holotype: BMNH 1946.1.7.26.

Distribution: Known only from type specimen, this species may be restricted to northeast India or Nepal (Murphy et al., 2012c).

Diagnosis: Divided loreal contacting upper labials 1–4; two prefrontals; scale rows at mid-body 39, reduced to 28 posteriorly; one postocular and no presubocular; 159 ventrals. *Homalopsis buccata* has a single loreal contacting upper labials 1–4; *H. nigroventralis* has upper labials 1–3 contacting loreal; *H. semizonata* has three prefrontals; *H. mereljcoxi* has a single loreal and two postoculars plus a postsubocular and 40–47 scale rows at mid-body, reduced to 30 or more posteriorly.

Specimen Examined (n = 1). **India:** BMNH 1946.1.7.26 (type).

Fig. 33. *Homalopsis buccata*, USNM 37813, Sumatra, Indonesia. (**A**) profile, (**B**) crown.

36. *Homalopsis mereljcoxi* Murphy, Voris, Murthy, Traub, and Cumberbatch

Jack's Water Snake

Figure 34

Homalopsis buccata: Morice, 1875: 58 [in part].
Homalopsis mereljcoxi Murphy, Voris, Murthy, Traub, and Cumberbatch, 2012c: 13. Holotype: FMNH 263756. Type locality: Thailand, Ban Badan (14°31′04″N, 101°58′25″E).

Distribution: Thailand and the Indochinese Peninsula (Murphy et al., 2012c).

Diagnosis: Single loreal contacting upper labials 1–4; scale rows at mid-body 40–49, reduced to 30 or more posteriorly; two postoculars plus a postsubocular; and ventral counts are usually greater than 165. *Homalopsis buccata* has 33–40 dorsal scale rows at mid-body, reduced to fewer than 30 posteriorly; one postocular plus a postsubocular; ventral count fewer than 166. *Homalopsis hardwickii* has a divided loreal; *H. nigroventralis* has upper labials 1–3 contacting loreal; 35–39 dorsal scale rows at mid-body, reduced to fewer than 30 posteriorly; reverse color pattern on the venter (dark olive-gray with white spots). *Homalopsis semizonata* has a divided or fragmented loreal contacting upper labials 1–4 or 1–5; three prefrontals; one postocular and one postsubocular.

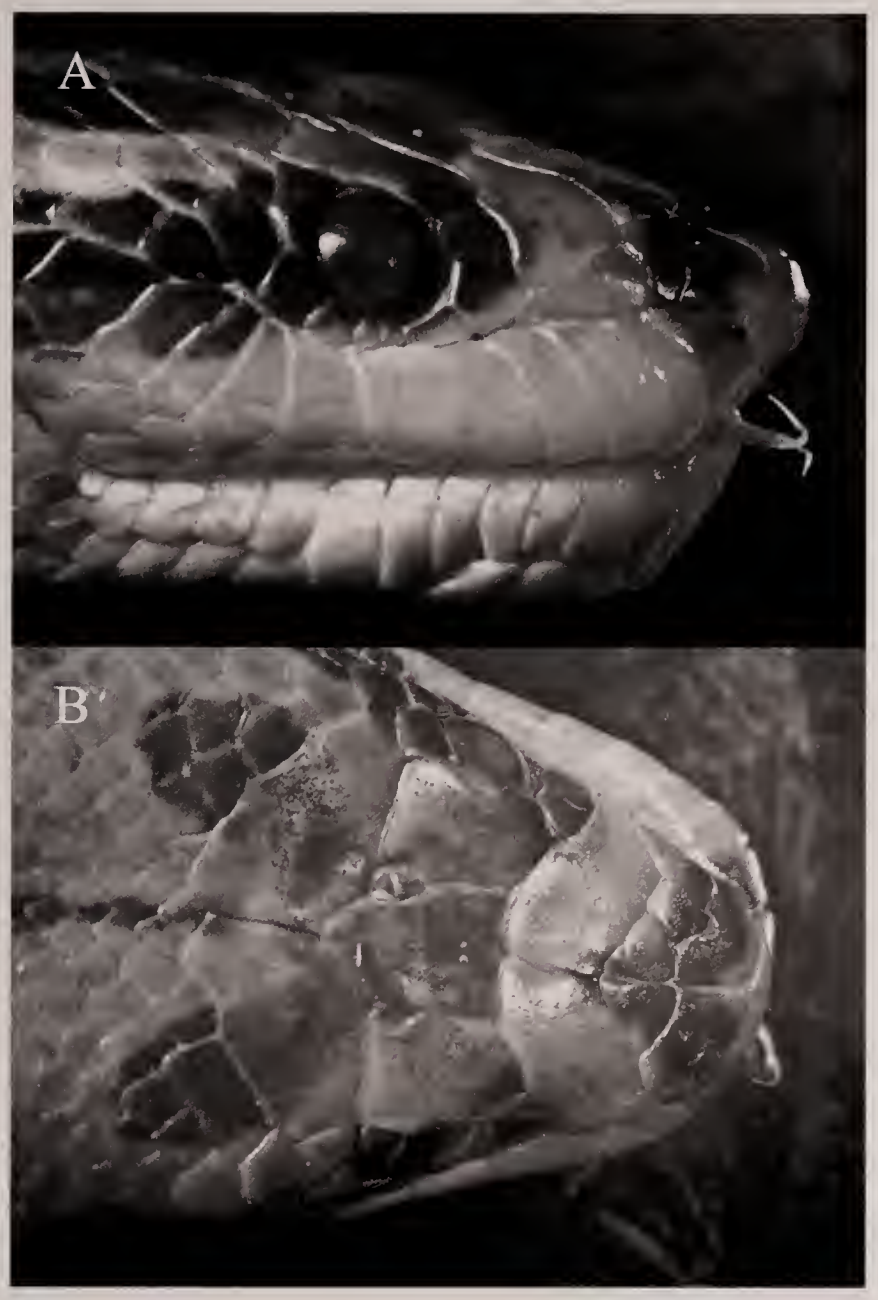


FIG. 34. *Homalopsis mereljcoxi*, FMNH 263756, holotype. Ban Badan Reservoir, Nakhon Ratchasima Province, Thailand. (**A**) profile, (**B**) crown.

SPECIMENS EXAMINED (n = 56): **CAMBODIA:** Kampong Chhnang Prov., FMNH 259306, 259293; Siem Reap Province, FMNH 257267, 257269–274, 259295, 259297–304; **THAILAND:** Bangkok, UMMZ 65369(4), 65370(2); UMMZ 65371, 65372(2), 96276; FMNH 178378; Nakhon Ratchasima Province, FMNH 180108; Phattalung Province, FMNH 252520–522; Songkhla Province, FMNH 252673–674, 252676–678, 252693, 252698, 252705, 257429–430; no specific locality, ANSP 5117; FMNH 579–580, 252514; **VIETNAM:** Kien Glang, FMNH 259088, 259089, 259090–94; Vi Thanh, ROM 37941–942; no data, FMNH 11129, 11551.

37. *Houalopsis nigroventralis* Deuve

Deuve's Water Snake

Figure 35

Homalopsis buccata: Taylor and Elbel, 1958: 1159.
Homalopsis nigroventralis Deuve, 1970: 183. Holotype: apparently lost. Type locality: Nam Ngum River Valley, Laos.

DISTRIBUTION: Mekong River Valley from Laos and Thailand to at least Cambodia (Murphy et al., 2012c).

DIAGNOSIS: Upper labials 1–3 contacting the loreal; two prefrontals; 35–39 dorsal scale rows at mid-body, reduced to 30 or fewer; one or two postocular plus one postsubocular; 10–12 upper labials; 159–167 ventrals; reverse color pattern on the venter (dark olive-gray with white spots). All other *Homalopsis* have upper labials 1–4 contacting loreal and a ventral pattern that is light with dark spots.

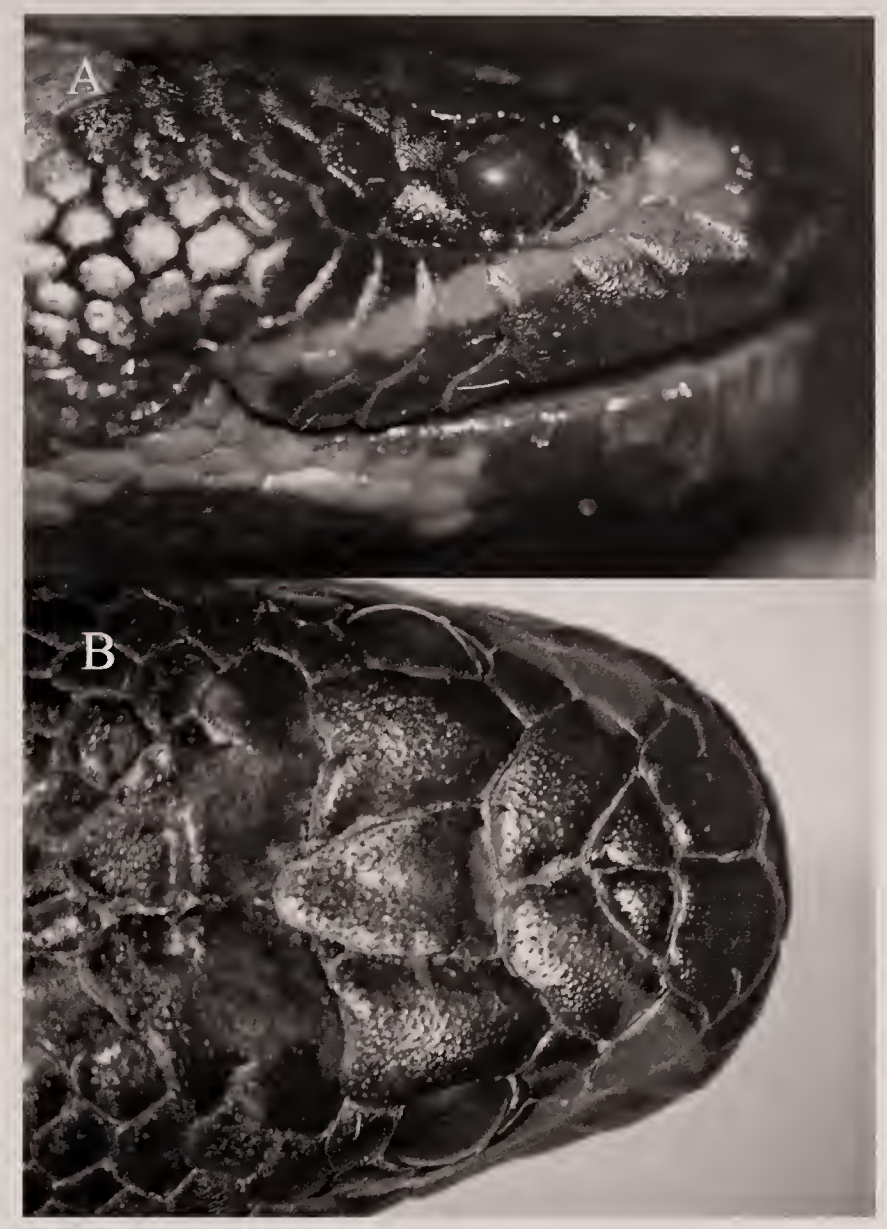


FIG. 35. *Homalopsis nigroventralis*, FMNH 117858, Thailand. (**A**) profile, (**B**) crown.

SPECIMENS EXAMINED (n = 11): **CAMBODIA:** Ta Veng, FMNH 263029; Siem Pang, FMNH 263030, 2630301–002, 263033; Nong Khai, FMNH 265801; MNHN 1988.2104; **THAILAND:** Phan Phu Mt., FMNH 179239, 117858–60.

38. *Homalopsis semizonata* Blyth

Martaban Water Snake

Figure 36

Homalopsis semizonata Blyth, 1855: 187. Holotype: ZSI 8137. Type locality: Martaban (= Mattama, southern Myanmar).
Homalopsis buccata: Günther, 1864: 285.

DISTRIBUTION: Irrawaddy Delta, Myanmar; also occurs at Kawkareik on the east side of Gulf of Martaban (Murphy et al., 2012c).

DIAGNOSIS: Distinguished from all other members of the genus by prefrontal composed of three scales, loreal scale divided into 2–6 smaller scales, upper labials 1–5 contacting loreal scales. All other *Homalopsis* have two prefrontals, and upper labials 1–4 at the loreal.

SPECIMENS EXAMINED (n = 36): **MYANMAR:** Kawkareik, BMNH 1940.3.9.10; CAS 12392; Pegu, Twante, near Rangoon, KU 924362–394; Mottama, ZSI 8137.

Homalopsidae Bonaparte, 1845

Hypsiscopus Fitzinger, 1843

Homalopsis Boie, 1827: column 560.
Hypsirhina Gray, 1835: 187.

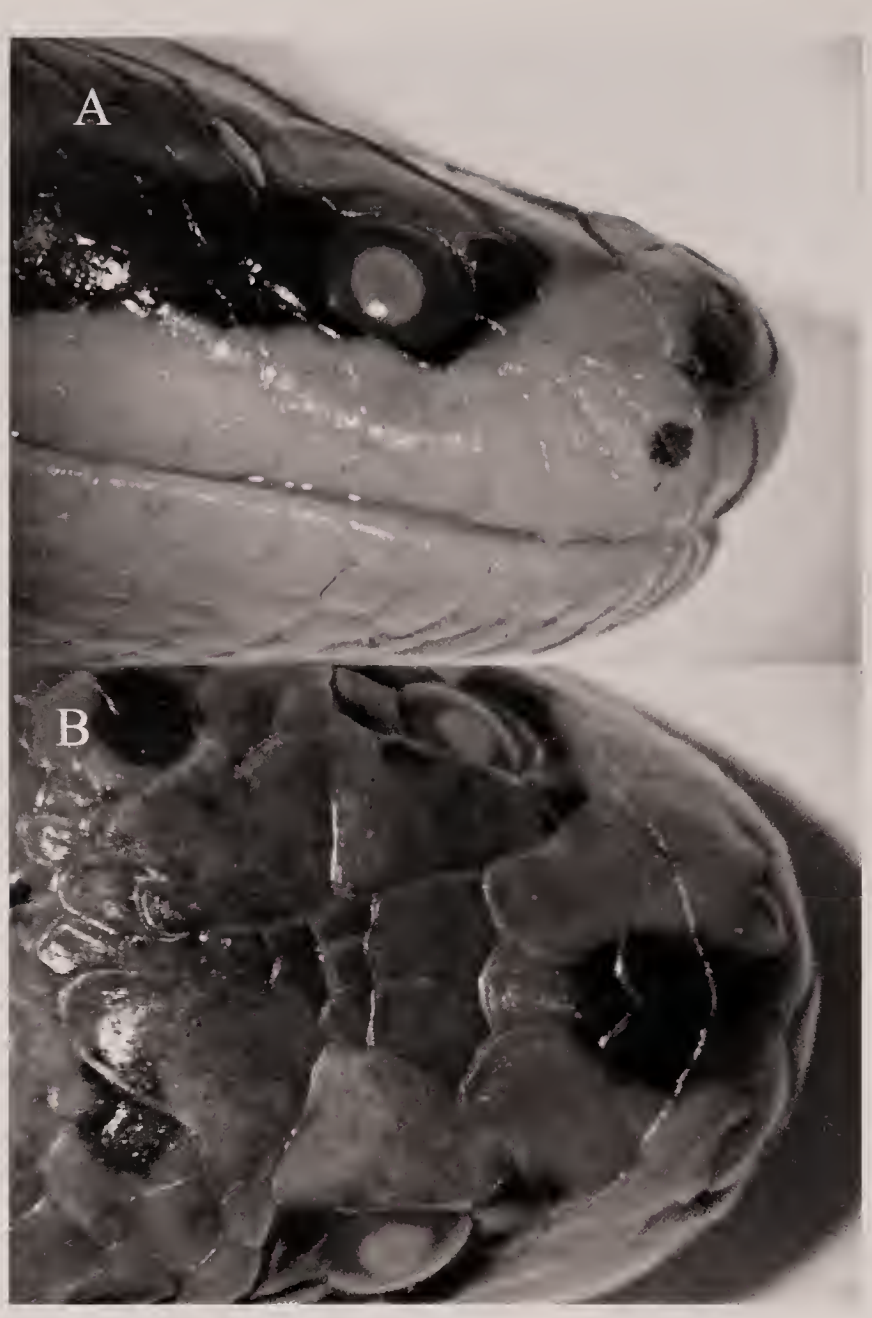


FIG. 36. *Homalopsis semizonata*, KU 92453, Myanmar. (**A**) profile, (**B**) crown.

FIG. 37. *Hypsiscopus matannensis*, NMBA 1735, holotype. Sulawesi, Indonesia. (**A**) profile, (**B**) crown.

Cohber Eydoux and Gervais, 1837: pl. 16, fig. 1.
Hypsiscopus Fitzinger, 1843: 25.
Eurostus Duméril, Bibron, and Duméril, 1854, 7: 955, pl. 84, fig. 2.
Enhydris Stejneger, 1898: 222.

TYPE SPECIES: *plumbea* Boie, 1827 by original designation; described as a subgenus of *Hydrophis* Fitzinger.

CONTENT: Two species: *Hypsiscopus matannensis*, *H. plumbea*.

DIAGNOSIS: Small snakes (<0.7 m), 19–21 scale rows at mid-body, internasal(s) do not contact loreal, upper labials 2–3 or 2–4 usually contact loreal, lower labials 1–5 usually contact the anterior chin shields, relatively short tails (10–17% of SVL), uniform dorsal and ventral patterns. This combination of characters distinguishes these snakes from all other homalopsids with 19 or 21 scale rows at mid-body.

DISTRIBUTION: Central Myanmar eastward to coastal China (including Hainan and Taiwan), including the entire Indochinese peninsula, peninsular Malaysia, greater Sundas (Sumatra, Java, Borneo), Sulawesi; Andaman and Nicobar Islands (Murphy, 2007a).

39. *Hypsiscopus matannensis* (Boulenger)

Matana Mud Snake

Figure 37

Hypsirhina matannensis Boulenger, 1897: 225. Holotype: NMBA 1735. Type locality: Lake Matana, Celebes (Sulawesi, Indonesia).
Enhydris matannensis: Haas, 1950: 576.

DISTRIBUTION: Endemic to southeast Sulawesi (Murphy, 2007a).

DIAGNOSIS: Scale at mid-body in 21 rows; single postocular; and divided internasal separate it from its congener, *H. plumbea*.

SPECIMEN EXAMINED (n = 1): **INDONESIA:** Sulawesi: NMBA 1735.

40. *Hypsiscopus plumbea* (Boie)

Boie's Mud Snake

Figure 38

Homalopsis plumbea Boie, 1827: column 560. Holotype: RMNH.RENA 1163. Type locality: Java.
Hypsirhina hardwickii Gray, 1835: 187, fig. 1. Holotype: BMNH 1946.1.2.44.
Cohuber plumbeus: Eydoux and Gervais, 1837: 3, pl. 16, fig. 1.
Hypsirhina plumbea: Gray, 1842: 66.
Hypsiscopus plumbea: Fitzinger, 1843: 25.
Eurostus plumbeus: Duméril, Bibron, and Duméril, 1854, 7: 955, pl. 84, fig. 2.
Enhydris plumbea: Stejneger, 1898: 222.

DIAGNOSIS: Scale rows at mid-body 19, ventrals 119–142; upper labials 2–3 or 2–4 contact loreal; four or five lower labials contact anterior chin shields. Dorsum uniform gray or black. Its congener, *H. matannensis*, has 21 scale rows at mid-body.

DISTRIBUTION: Widely distributed, ranging from the Andaman Islands (India) and central Myanmar eastward across the Indochinese Peninsula and southern China southward into Indonesia. Present on many, if not all, Indonesian islands and

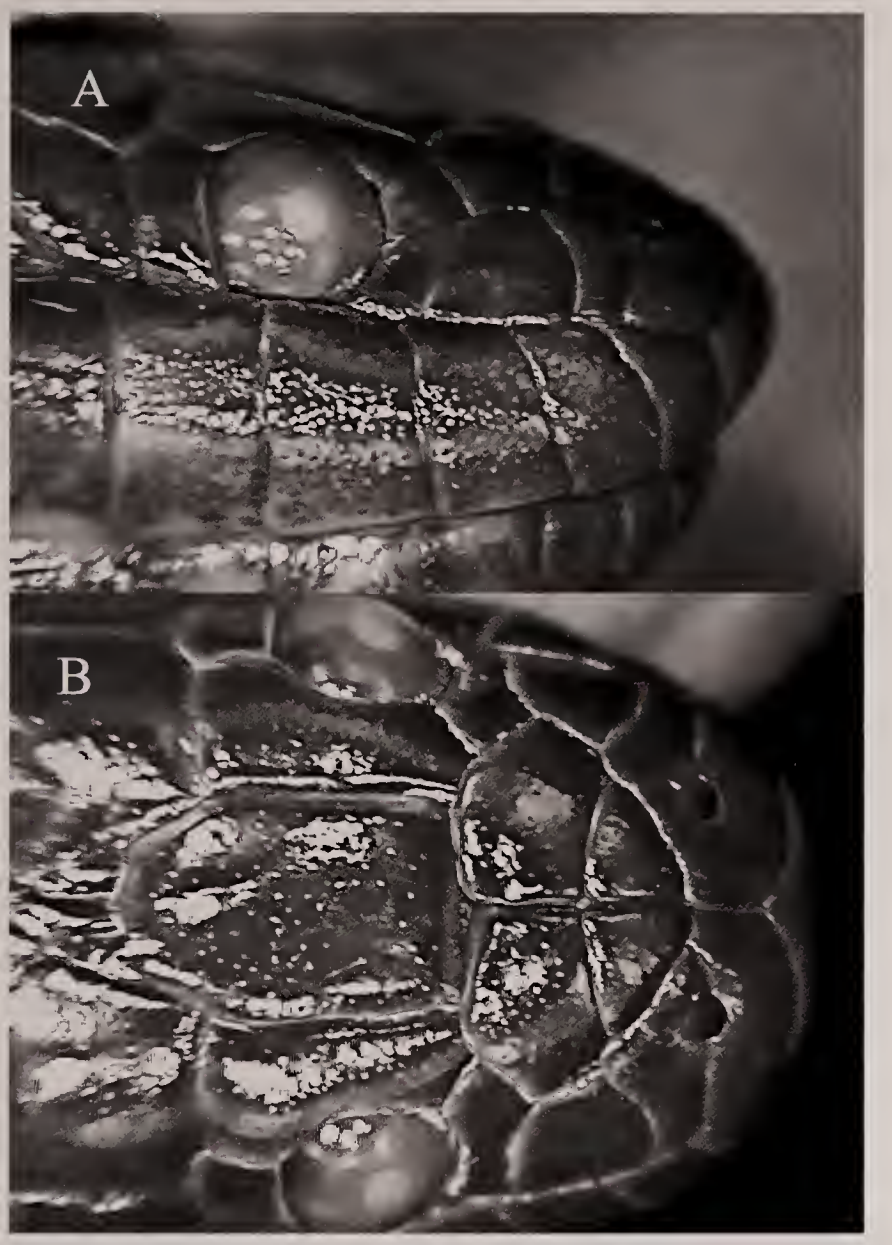


FIG. 38. *Hypsiscopus plumbea*, FMNH 180090, Thailand. (**A**) profile, (**B**) crown.

FIG. 39. *Kualatahan pahangensis*, BMNH 1947.1.1.70, holotype. (**A**) profile, (**B**) crown.

extends its distribution eastward to Sulawesi. AMNH 3840 from the Moluccan Islands extends the eastern edge of the range, if the locality data are correct (Murphy, 2007a).

SPECIMENS EXAMINED (n = 154): **CHINA:** Fukien, FMNH 24966–75, 29974–75; **INDONESIA:** BMNH 96.12.9.78; UMMZ 65456, 67225; **LAOS:** FMNH 255228–29, 258658; **MALAYSIA:** BMNH 1946.1.2.44; FMNH 218849, 229763, 299782, 229810, 229819; ZRC 3328, 3333, 3334; Sabah, FMNH 121429, 251572–88; SSM 0445, 0449, 0451, 0459, 0479, 0484, 0495, 0503, 0505, 0583, 0592, 0593, 0610, 0620, 0622, 0625, 0635, 0641, 0657, 0673; **TAIWAN:** FMNH 168925, 168928, 169130–34, 169350–51; UMMZ 172124, 182639, 183717; **THAILAND:** FMNH 171523–28, 179279–300, 186671–82, 180089–106, 250124, 257436, 257428, 252671, 259076, 259222–26, 252493–99; **VIETNAM:** ROM 30818, 32390.

Homalopsidae Bonaparte, 1845

Kualatahan new genus

Enhydris Tweedie, 1946: 142.

TYPE SPECIES: *Enhydris pahangensis.*

CONTENT: One species: *Kualatahan pahangensis.*

DIAGNOSIS: Smooth scales, nasal scales in contact; 25 scale rows at mid-body, eight upper labials, upper labials 2–3 contact loreal.

DISTRIBUTION: Known only from the type locality Kuala Tahan, River Tembeling, Pahang, peninsular Malaysia (Murphy, 2007a).

ETYMOLOGY: Named after the type locality Kuala Tahan, at the confluence of the Tembeling and Tahan Rivers, Pahang, peninsular Malaysia. Gender of the genus is neutral.

41. *Kualatahan pahangensis* (Tweedie)

Pahang Mud Snake

Figure 39

Enhydris pahangensis Tweedie, 1946: 142. Holotype: BMNH 1947.1.1.70. Type locality: Kuala Tahan, River Tembeling, Pahang, between 500- and 1000-feet altitude (152–308 m).

DIAGNOSIS: Twenty-five scale rows at mid-body, eight upper labials, upper labials 2–3 contact loreal, dorsal scales lanceolate; two pairs of chin shields, five lower labials contacting first pair. Dark lateral stripe on the outer edge of ventral row 1, light stripe on rows 2–4. *Gyiophis* has 25 scale rows at mid-body; but upper labials 1–3 contact the loreal; dorsal scales, particularly those in first row, are ovate. Both *Homalophis* and *Phytolopsis* have 25 scale rows at mid-body, but have more than 10 upper labials, and some are horizontally divided.

DISTRIBUTION: Known only from the type locality Kuala Tahan, River Tembeling, Pahang, peninsular Malaysia (Murphy, 2007a).

SPECIMEN EXAMINED (n = 1): **MALAYSIA:** BMNH 1947.1.1.70.

Homalopsidae Bonaparte, 1845

Mintonophis new genus

Enhydris Mertens, 1959: 117.

TYPE SPECIES: *Enhydris pakistanica* Mertens by monotypy.

CONTENT: One species.

Diagnosis: Large, relatively thin body, exceptionally long tail, very narrow ventrals on anterior, nasals in contact; dorsal scales smooth, in 29 rows at mid-body, chin shields greatly reduced in size or absent.

Distribution: Lower Indus River Valley, Pakistan (Murphy, 2007a).

Etymology: Named in honor of Sherman A. Minton, Jr. for his work on the Pakistan herpetofauna. Gender of the genus is feminine.

42. *Mintonophis pakistanicus* (Mertens)

Sind River Mud Snake

Figure 40

Enhydris pakistanica Mertens, 1959: 117. Holotype: SMF 56340. Type locality: Jati, Sind, West Pakistan.

Diagnosis: Dorsal scales smooth, in 29 rows at mid-body; 153–162 ventrals exceptionally narrow on anterior body, widening posteriorly; 8–9 upper labials, 4 or 4–5 in orbit; internasal divided contact loreal; loreal contacts upper labials 1–3; lower labials 11–12; chin shields absent (or exceptionally small), replaced by numerous small scales; tail exceptionally long, about 26.7% of SVL. The exceptionally narrow ventrals, absent or tiny chin shields, and long tail suggest this snake is highly derived and convergent with *Erpeton*.

Distribution: Extreme western edge of the family's distribution in the Indus River Delta of Pakistan (Murphy, 2007a).

Specimens Examined (n = 28): **Pakistan:** AMNH 91354–64, 138377–87 (93160–64 and 138377–87 are the offspring of the 93155–59 series); CAS 99964–65, 99967–72; UMMZ 123843.

Homalopsidae Bonaparte, 1845

Miralia Gray

Brachyorrhos Reuss, 1833: 155, pl. 9, fig. 3.
Homalopsis Schlegel, 1837a,b: 344; fig 3.
Miralia Gray, 1842: 68.
Pelophis Fitinzger, 1843: 25.
Eurostus Duméril, Bibron, and Duméril, 1854, 7: 957.
Hypsirhina Jan, 1863: 78.
Enhydris Haas, 1950: 575.

Type Species: *Miralia alternans* by monotypy.

Content: One species.

Diagnosis: Smooth scales, nasals in contact; dorsal scales in 19 rows at mid-body; a tiny preocular scale; lower postocular does not extend below eye; fourth and fifth upper labials enter orbit; the ventrals number 120–143; eight upper labials; nasal cleft contacts second upper labial.

Distribution: Greater Sunda Islands (Sumatra, Java, and Borneo) and some of their satellites (Murphy, 2007a).

43. *Miralia alternans* (Reuss)

Reuss' Mud Snake

Figure 41

Brachyorrhos alternans Reuss, 1833: 155, pl. 9, fig. 3. Holotype: SMF 19465. Type locality: "Java."
Homalopsis decussate: Schlegel, 1837a,b, 344, pl. 13, figs. 14–16. Holotype: NRM 1157. Type locality: "Java."
Miralia alternans: Gray, 1842: 68.
Eurostus alternans: Duméril, Bibron, and Duméril, 1854, 7: 957.
Hypsirhina alternans: Jan, 1863: 78.

Fig. 40. *Mintonophis pakistanicus*, AMNH 93154, Pakistan. (**A**) profile, (**B**) crown, (**C**) narrow anterior ventrals.

Enhydris alternans: Haas, 1950: 575.

Diagnosis: Smooth scales, nasals in contact; dorsal scales in 19 rows at mid-body; a tiny preocular scale; lower postocular does not extend below eye; fourth and fifth upper labials enter orbit; the ventrals number 120–143; eight upper labials; nasal cleft contacts second upper labial.

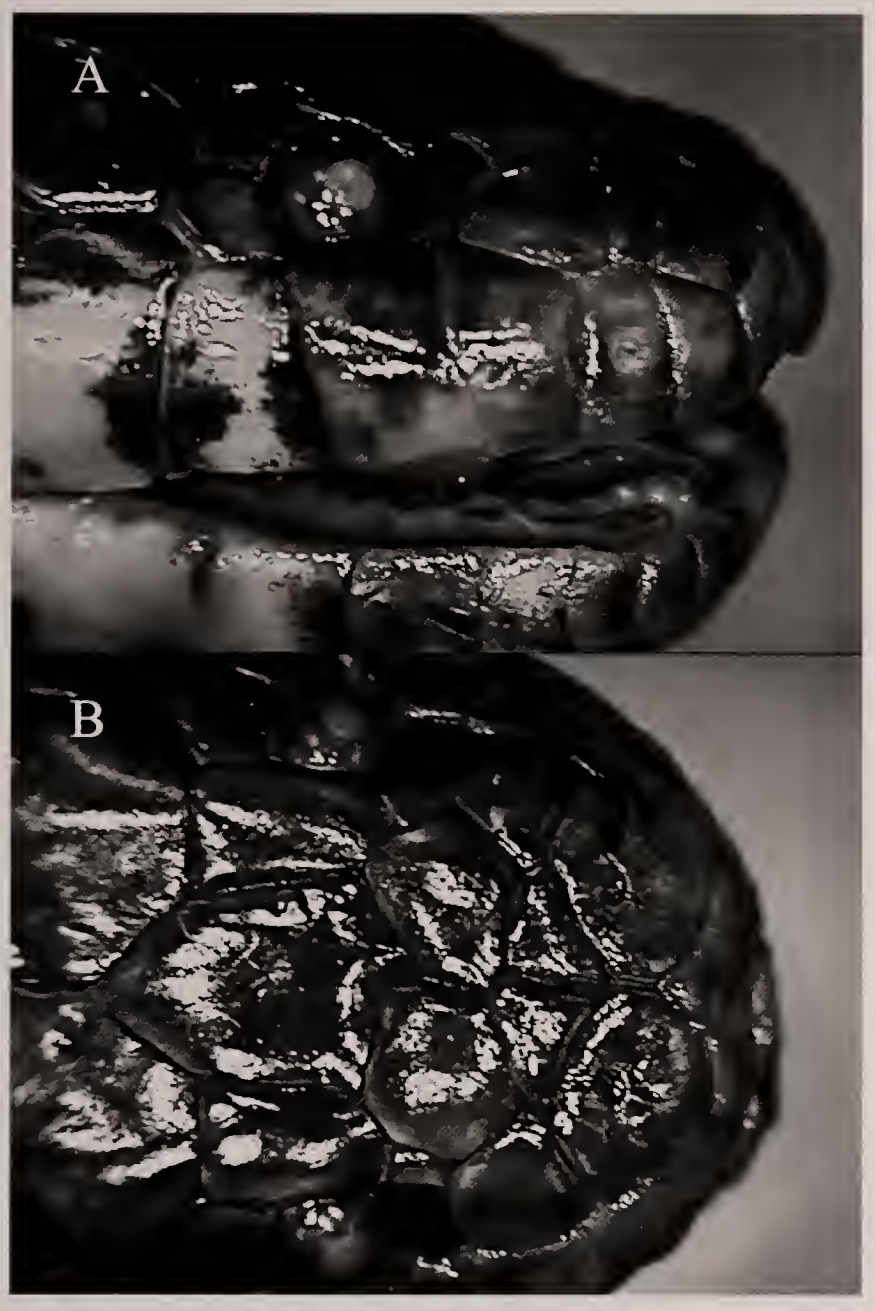


FIG. 41. *Miralia alternans*, BMNH 63.12.4.22, Borneo. (**A**) profile, (**B**) crown.

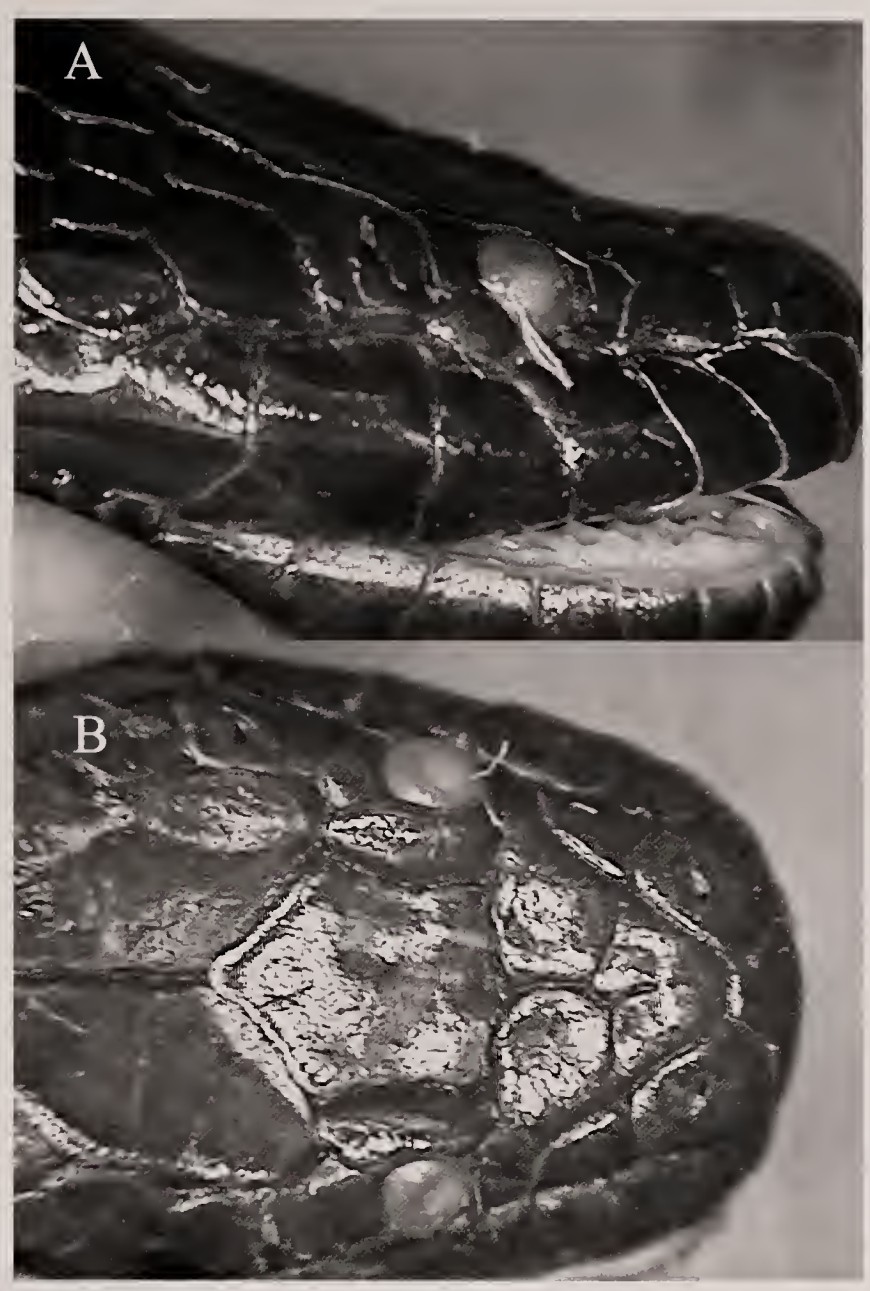


FIG. 42. *Myron karnsi*, SMF 19569, holotype. Aru Islands, Indonesia. (**A**) profile, (**B**) crown.

NOTE: Superficial similarities to *Raclitia indica*; Gyi (1970) suggested they are closely related. However, extremely gracile body of *R. indica*, more robust body of *R. alternans*, the difference of more than 30 ventrals between the two species, and the exceptionally microcephalic condition of *R. indica* suggest the two snakes have been separated from each other for some time and have distinct evolutionary trajectories.

DISTRIBUTION: Greater Sunda Islands (Sumatra, Java, Borneo) and smaller islands of Bangka and Beliting (Murphy, 2007a).

SPECIMENS EXAMINED (n = 6): **INDONESIA:** Biliton I., RMNH.RENA 5703; Borneo (no specific locality), BMNH 63.12.4.22; Sumatra, FMNH 11092, NMBA 2537, USNM 56022; **MALAYSIA:** Sarawak, ZRC 2.3523.

Homalopsidae Bonaparte, 1845

Myron Gray

Myron Gray, 1849: 70.
Neospades De Vis, 1889: 238, pl. 14.

TYPE SPECIES: *Myron richardsonii* by monotypy.

CONTENT: Three species: *M. karnsi*, *M. resetari*, *M. richardsonii*.

DISTRIBUTION: Northern Australia, Southern New Guinea, Aru Islands of Indonesia.

DIAGNOSIS: Dwarf homalopsids, usually less than 0.4 m in length; internasal separates nasals; mid-body scale rows 19–21, dorsal rows above number 6 have keeled scales; upper labials number 8–10 (usually 9), 2–3 contact loreal, fourth upper labial enters orbit; lower postocular also extends under orbit; lower labials 9–12, first three contacting first lower chin shield; three pairs of chin shields.

44. *Myron karnsi* Murphy

Aru Mangrove Snake

Figure 42

Myron richardsonii: Rooij, 1917, 2: 192.
Myron karnsi: Murphy, 2011: 231. Holotype: SMF 19569. Type locality: Indonesia Aru, Kobroor, Selrutti.

DISTRIBUTION: Know only from type locality (Murphy, 2011).

DIAGNOSIS: Melanistic, 21 scale rows at mid-body; seven upper labials; single preocular, semi-divided nasal, and a black dorsum with narrow yellow cross bands separate this species from the other two species of *Myron*.

SPECIMEN EXAMINED (n = 1): **INDONESIA:** Aru Islands, SMF 19569.

45. *Myron resetari* Murphy

Broome Mangrove Snake

Figure 43

Myron richardsonii: Gyi, 1970: 172–174, fig. 28.
Myron resetari: Murphy, 2011: 232. Holotype: QM J52861. Type locality: Broome, Western Australia.

FIG. 43. *Myron resetari*, BMNH 1935.7.6.2, northern Australia. (**A**) profile, (**B**) crown.

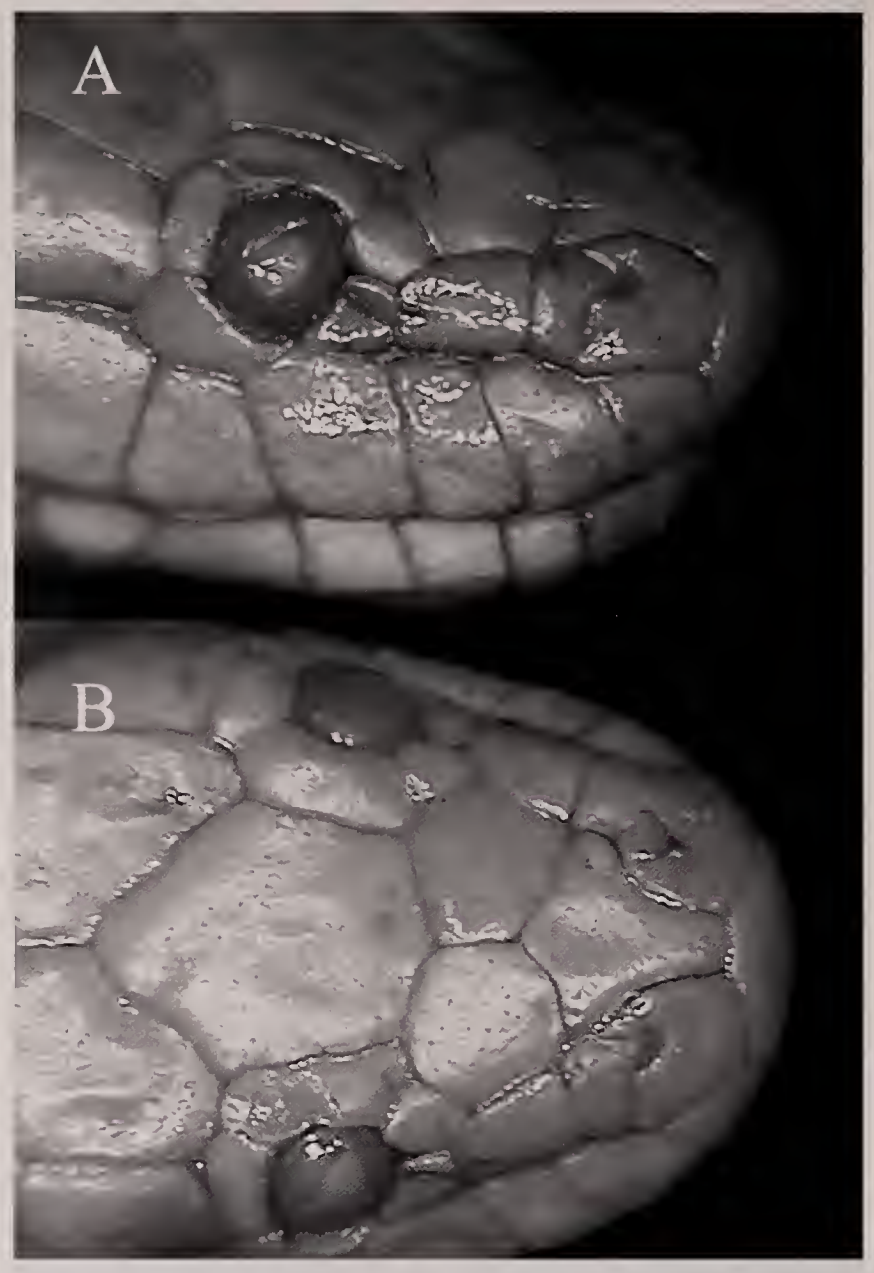


FIG. 44. *Myron richardsonii*, FMNH 97649, Northern Territory, Australia. (**A**) profile, (**B**) crown.

DISTRIBUTION: Known only from type locality (Murphy, 2011) and coastal Western Australia.

DIAGNOSIS: Nineteen scale rows on the neck and at mid-body; one preocular; large, plate-like occipital scale that is posterior and lateral to parietals. *Myron resetari* distinguished from *M. richardsonii* by lower scale row count on neck and at mid-body (19 vs. 21); one preocular (two in *M. richardsonii*); largest upper labial is the fifth compared with the largest upper labial of six or seven in *M. richardsonii*. Distinguished from *M. karnsi* by lower number of scale rows at mid-body (19 vs. 21), a blotched pattern on a gray ground color (as opposed to yellow bands on black ground color in *M. karnsi*).

SPECIMENS EXAMINED (n = 2): **AUSTRALIA:** northern Australia, BMNH 1935.7.6.2; Broome, Western Australia, QM J52861.

46. *Myron richardsonii* Gray

Richardson's Mangrove Snake

Figure 44

Myron richardsonii Gray, 1849: 70. Holotype: BMNH 1946.1.2.43. Type locality: "North West Australia."
Neospades kentii De Vis, 1889: 238, pl. 14. Holotype: QM J681. Type locality: Cambridge Gulf, Western Australia.
Myron richardsonii: Rooij, 1917: 192, figs. 73–74.

DISTRIBUTION: Coastal north Australia from Gulf of Carpentaria to Western Australia and northward to south coast of New Guinea (Murphy, 2007a, 2011).

DIAGNOSIS: Twenty-one scale rows on the neck and at mid-body, reduced to 17 or 19 rows near vent; posterior dorsal scale rows above row 6 weakly keeled; two preocular; upper labials usually number 8 or 9; lower labials 8–10; dorsal pattern of blotches number 35–48. Presence of 21 scale rows, two preoculars distinguish it from *M. resetari*. The 8 to 10 upper labials and blotched pattern separate it from *M. karnsi*, which is melanistic with narrow yellow cross bands and has fewer upper labials.

SPECIMENS EXAMINED (n = 16): **AUSTRALIA:** AMS 112001–02, 119448–49, 130697; BMNH 1946.1.2.43; FMNH 97649; QM J52861; SAMA 24824–27; **NEW GUINEA:** BMNH 1987.923; FMNH 116769. No data: BMNH 55.10.66.

Homalopsidae Bonaparte, 1845

Myrrophis Kumar, George, Sanders, and Murphy

Hypsirhina Gray, 1842: 67.
Enhydris Stejneger, 1907: 302.
Myrrophis Kumar, George, Sanders, and Murphy, 2012: 484.

TYPE SPECIES: *Myrrophis chinensis*.

CONTENT: Two species: *M. bennettii* and *M. chinensis*.

DISTRIBUTION: Southern China, including the islands of Hong Kong and Hainan (Kumar et al., 2012).

DIAGNOSIS: The combination of 21–23 dorsal scale rows at mid-body, internasal not in contact the loreal, and five lower labials contact first chin shield distinguishes this genus from all other homalopsids with smooth scales and nasals in contact.

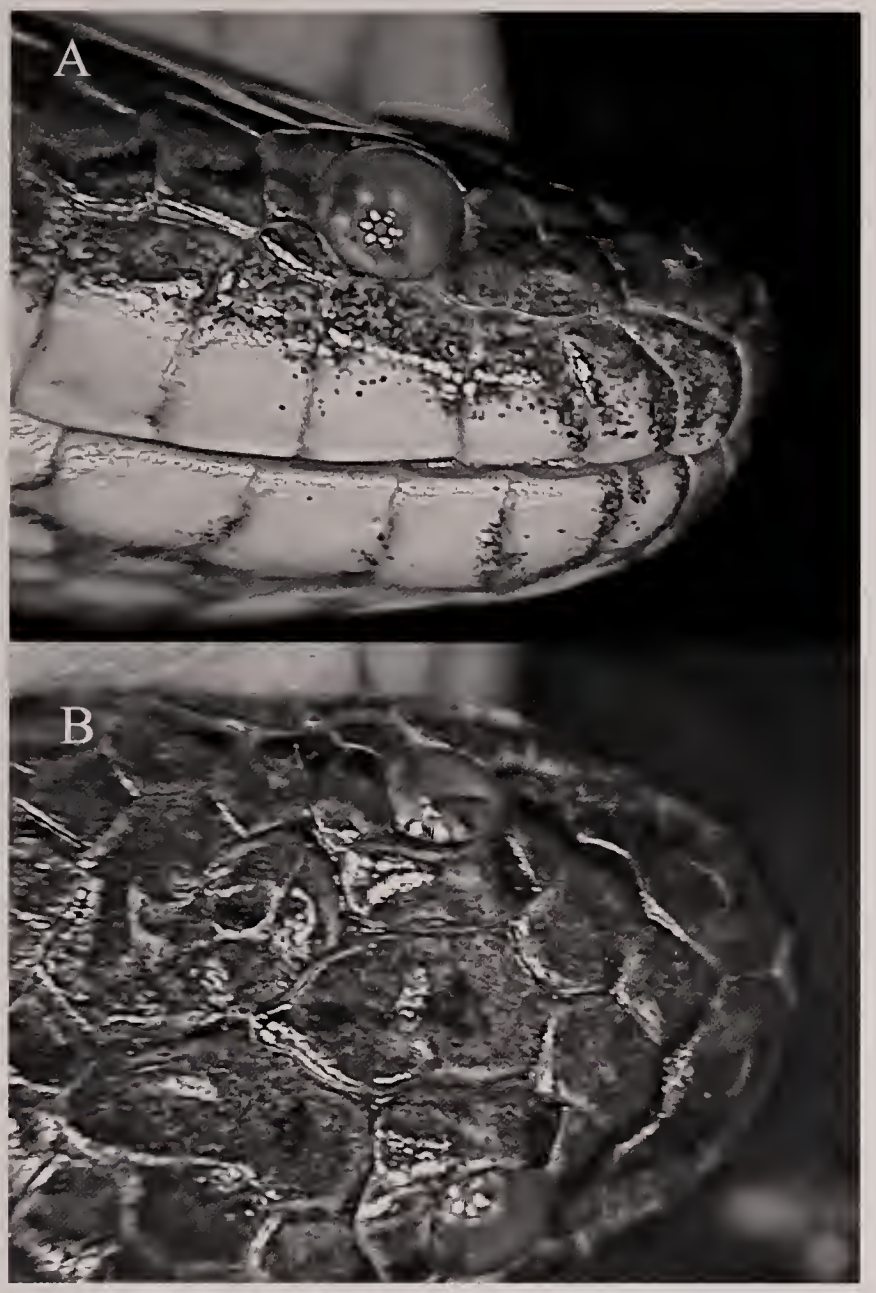


Fig. 45. *Myrrophis bennettii*, MCZ 176508, Hong Kong, China. (**A**) profile, (**B**) crown.

Also, some dorsal scales in the cloacal region have enlarged, gland-like tubercles. All members of the *Enhydris* clade (*chanardi*, *enhydris*, *jagorii*, *innominata*, *longicauda*, *subtaeniata*) have 21 (rarely 23) dorsal scale rows at mid-body, and an internasal that contacts the loreal. The gland-like tubercles in cloacal region have not been observed in *Enhydris*. The only other homalopsid with smooth scales in 21 rows with the nasal in contact is *E. matannensis* from Sulawesi, and it has upper labials 4+5 in orbit and a divided internasal. It is in the *plumbea* clade. *Myrrophis chinensis* has two sulci on the hemipenis as opposed to one that is forked in *Enhydris* (Gyi, 1970); this character state needs to be re-checked in *M. bennettii*.

47. *Myrrophis bennettii* (Gray)

Bennett's Mud Snake

Figure 45

Hypsirhina bennettii Gray, 1842: 67. Holotype: BMNH 1946.1.2.49. Type locality: "China."
Hypsirhina maculata Duméril, Bibron, and Duméril, 1854: 950. Type locality: "China." Holotype: MNHN c3453(2).
Hypsirhina enhydris var. *maculata* Jan and Sordelli, 1868: 30, pl. 4, fig. 1.
Enhydris bennettii: Stejneger, 1907: 302.
Myrrophis bennettii: Kumar et al., 2012: 484.

Distribution: South coast of China from Hong Kong southward to Hainan (Kumar et al., 2012).

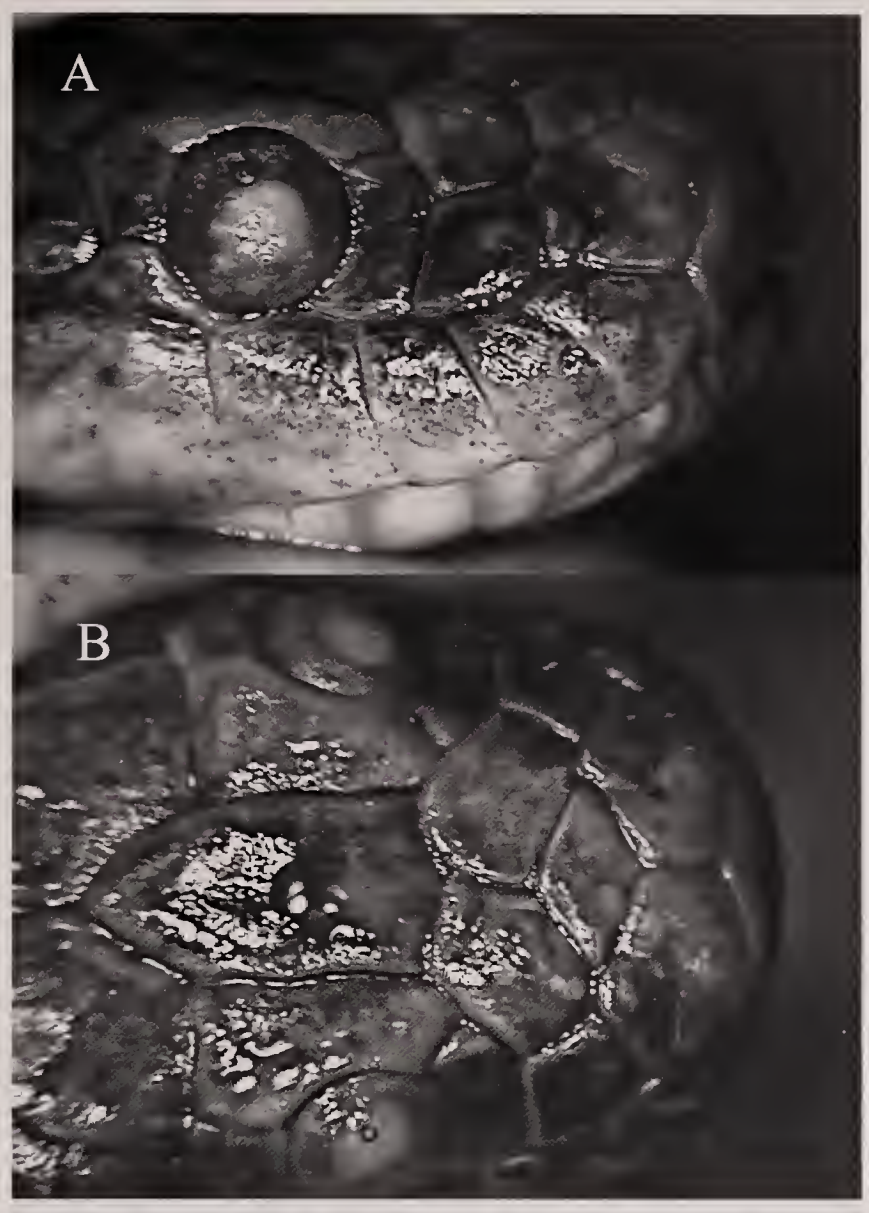


Fig. 46. *Myrrophis chinensis*, FMNH 127970, Taiwan. (**A**) profile, (**B**) crown.

Diagnosis: Dorsal scales in 21 rows at mid-body, reduced to 17 or 15 in front of the vent; an internasal scale that does not contact the loreal; an upper postocular larger than lower postocular. It is most often confused with *M. chinensis*, which has 23 rows of scales at mid-body, 19 rows near the vent.

Specimens Examined (n = 11): **China:** Hainan, BMNH 1932.12.15.2, 1969.1880; SMF 19486; Hong Kong, BMNH 1983.254–256; MCZ 176507–8; USNM 22128. No specific locality: BMNH 1946.1.2.49 (type), 111.25.6.6 (1840).

48. *Myrrophis chinensis* (Gray)

Chinese Mud Snake

Figure 46

Hypsirhina chinensis Gray, 1842: 66. Holotype: BMNH 1946.1.2.42. Type locality: "China."
Hypsirhina sinensis: Stanley, 1914: 30 [in error for *chinensis*].
Enhydris chinensis: Smith, 1923: 203.
Myrrophis chinensis: Kumar et al., 2012: 484.

Distribution: Southern China, North Vietnam, Taiwan, Hong Kong, Hainan (Kumar et al., 2012).

Diagnosis: Scale rows at mid-body 23, reduced to 19 rows in front of vent; internasal not usually in contact with loreal, upper postocular smaller than lower postocular.

Specimens Examined (n = 38): **China:** Fukien, USNM 66430, 67597; Canton River, ANSP 5095–98; Xi Qiao, MCZ 166889–901; **Taiwan:** CAS 144017; FMNH 140076–86; 168922, 168924, 168926–27, 169244–48, 169305, 169310, 169329, 169344, 169356; **Vietnam:** Tom Dao, ROM 30889–90, 31031. No locality data: ANSP 27239.

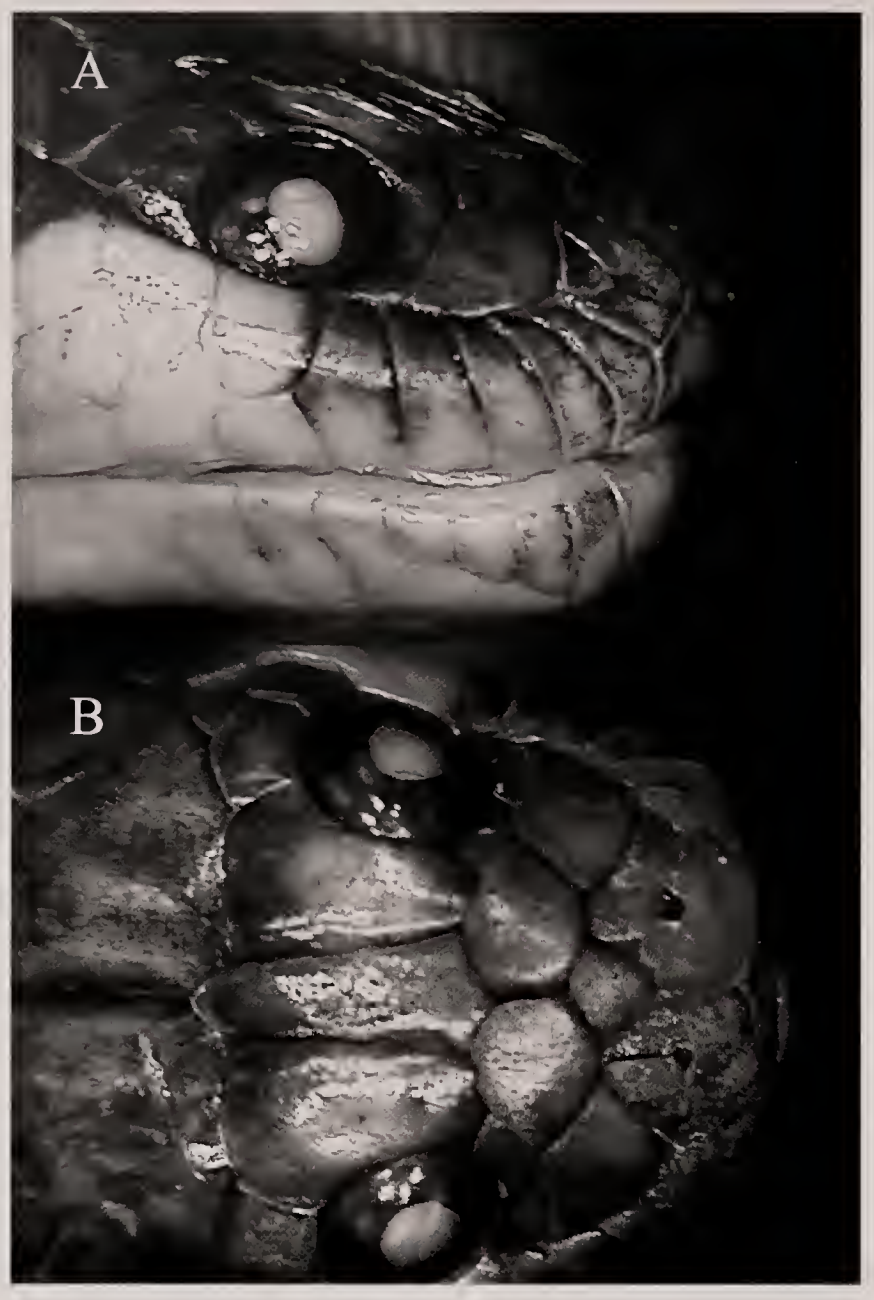


FIG. 47. *Phytolopsis punctata*, BMNH 1938.9.7.2, Gungong Pulai, Johore, Malaysia. (**A**) profile, (**B**) crown.

Homalopsidae Bonaparte, 1845

Phytolopsis Gray

Phytolopsis Gray, 1849: 67.
Eurostus Bleeker, 1859: 440.
Tachyplotus Reinhardt, 1866: 151.
Pythonopsis Peters, 1871: 576.
Hypsirhina Lidth de Jeude, 1890: 20, pl. 1.
Enhydris Kinghorn, 1929: 89.

TYPE SPECIES: *Phytolopsis punctata* by monotypy.

CONTENT: One species.

DIAGNOSIS: Large bodied, dorsal scales in 25–27 rows; upper labials number 11–13, those behind eye horizontally divided; lower labials 12–15; ventrals 148–160; subcaudals 36–48; upper labial 5 or 5–6 under orbit; no suboculars; two pairs of chin shields, first pair very wide. Readily distinguished from *Homalophis* by lower number of scales at mid-body (29–33 in *Homalophis*), single supraocular (2 or 3 in *Homalophis*), and absence of subocular.

DISTRIBUTION: Peninsular Malaysia, Sumatra, Borneo (Murphy, 2007a).

49. *Phytolopsis punctata* Gray

Blackwater Mud Snake

Figure 47

Phytolopsis punctata Gray, 1849: 68. Holotype: BMNH 1946.1.2.37. Type locality "India" (in error).

Eurostus heteraspis Bleeker, 1859: 440. Holotype: BMNH 1946.1.2.39. Type locality: Sinkawang, Borneo.
Tachyplotus hedeuanni Reinhardt, 1866: 151. Type locality: Billiton Is. [Indonesia]. Holotype: unknown.
Pythonopsis borneensis Peters, 1871: 576. Holotype: unknown. Type locality: Sarawak.
Hypsirhina hageui Lidth de Jeude, 1890: 20, pl. 1. Holotype: RMNH.RENA 862. Type locality: "Laboean." David and Vogel (1996, p. 118) note that the type locality given by Lidth de Jeude as Laboean or Lubuan is now known as Belawan, Sumatra [3°47′N, 98°41′E]. This city is on the northeast coast of Sumatera Utara.
Hypsirhina punctata: Boulenger, 1893, 3: 12.
Enhydris punctata: Kinghorn, 1929: 89 [probably based upon a misidentified *Fordonia*].

DIAGNOSIS: Large bodied, with short tail; smooth dorsal scales in 25–27 rows; upper labials number 11–13, those behind eye horizontally divided; lower labials 12–15; ventrals 148–160; subcaudals 36–48; upper labial 5 or 5–6 under orbit; no suboculars; two pairs of chin shields, first pair very wide, flared.

DISTRIBUTION: Peninsular Malaysia, Sumatra, Borneo. No evidence that it is present in India as suggested by Gyi; may be a complex of cryptic species restricted to blackwater swamps (Murphy, 2007a).

SPECIMENS EXAMINED (n = 11): **INDONESIA:** MCZ 5165; RMNH.RENA 862; **MALAYSIA:** BMNH 98.11.29.9, 1938.9.7.2, 1940.2.2.8, 1946.1.2.39; FMNH 250111–112; ZRC 2.3272–3273. No data: NMBA 12027.

Homalopsidae Bonaparte, 1845

Pseudoferania Ogilby

Hypsirhina Fischer, 1886: 14.
Pseudoferania Ogilby, 1891: 51.
Enhydris Kinghorn, 1929: 86.

TYPE SPECIES: *Pseudoferania macleayi* Ogilby by monotypy.

CONTENT: One species.

DISTRIBUTION: Northern Australia, New Guinea (Murphy, 2011).

DIAGNOSIS: Moderate-sized snake, reaching 0.8 m, 21–27 rows (usually 23) of dorsal scales at mid-body; nasal in contact, most dorsal scales smooth, but posterior body has keeled scales.

50. *Pseudoferania polylepis* (Fischer)

Macleay's Mud Snake

Figure 48

Hypsirhina polylepis Fischer, 1886: 14. Type locality: Fly River, Papua New Guinea. Holotype: MTKD D437 (probably destroyed in World War II, *fide* Obst, 1977).
Pseudoferania macleayi Ogilby, 1891: 51. Type locality: Herbert River, Queensland, Australia. Holotype: AMS R460.
Hypsirhina macleayi: Boulenger, 1893, 3: 9.
Enhydris polylepis: Kinghorn, 1929: 86.
Enhydris enhydris: Parker, 1982: no pagination.
Pseudoferania polylepis: Wells and Wellington, 1983: 108.
Pseudoferania harritosi Wells and Wellington, 1985, 1: Supplement, p. 43. Type locality: " ... Daly River (upstream from 'Police Station Crossing'), Northern Territory ... " Holotype: AMS R72982.

DISTRIBUTION: Coastal plain of Queensland, Northern Territory, Papua New Guinea; Groote Island (Murphy 2007a, 2011).

DIAGNOSIS: Parietals longer than frontal; loreal single. Dorsal scales in 21–27 rows (usually 23) at mid-body; 137–162 ventral scales; upper labials 7–9 (usually 8), with 4–5 or 5–

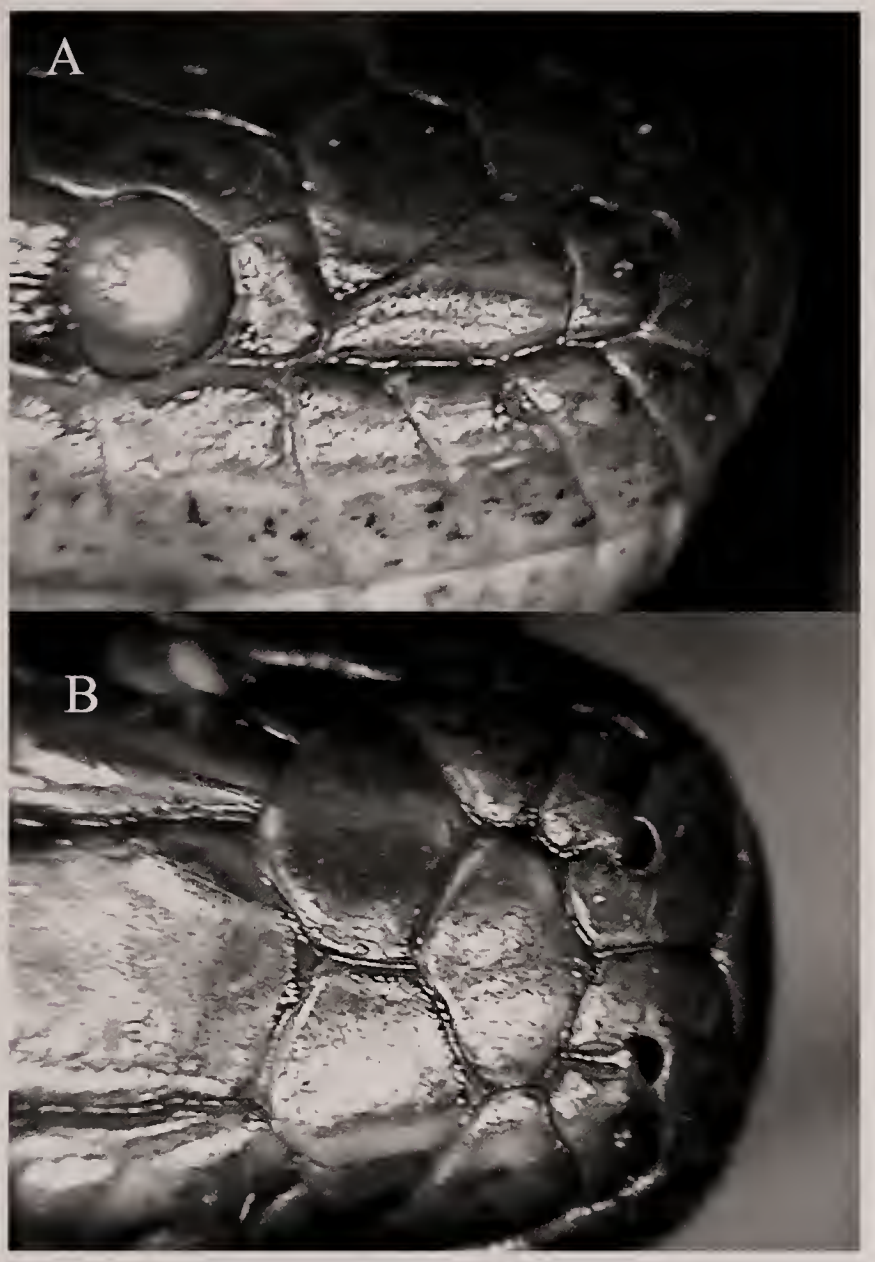


FIG. 48. *Pseudoferania polylepis*, AMS 10224, Northern Territory, Australia. (**A**) profile, (**B**) crown.

6 under the orbit, upper labials 2–3 or 2–4 contact loreal. Internasal single or double, may or may not contact loreal.

NOTE: This taxon is most likely a species complex. It is the only freshwater homalopsid in the Australopapuan region except *Heurnia* from Western Papua, which does not have the nasal scales in contact.

SPECIMENS EXAMINED (n = 30): **AUSTRALIA:** Northern Territory, AMS 10221, 10223–24, 10225; USNM 213440, 128450; Queensland, AMNH 82443, 69306; CAS 103021, 121101; FMNH 97265; MCZ 140183; QM 20282, 23221, 28314, 37578, 51352, 51961; **PAPUA NEW GUINEA:** AMNH 111769–70; CAS 132210; MCZ 121562, 129135, 134728–30, 134898, 136088, 137329, 141689.

Homalopsidae Bonaparte, 1845

Raclitia Gray

Raclitia Gray, 1842: 67.
Hypsirhina Boulenger, 1893, 3: 4.
Enhydris Tweedie, 1957: 89.

TYPE SPECIES: *Raclitia indica* Gray by monotypy.

CONTENT: One species.

DIAGNOSIS: A slender body with a short, tiny head barely wider than the neck. Scale rows at mid-body 19, reduced to 17 rows posteriorly. Scales smooth; nasals in contact; ventrals exceptionally wide.

DISTRIBUTION: Selangor, peninsular Malaysia (Murphy, 2007a).

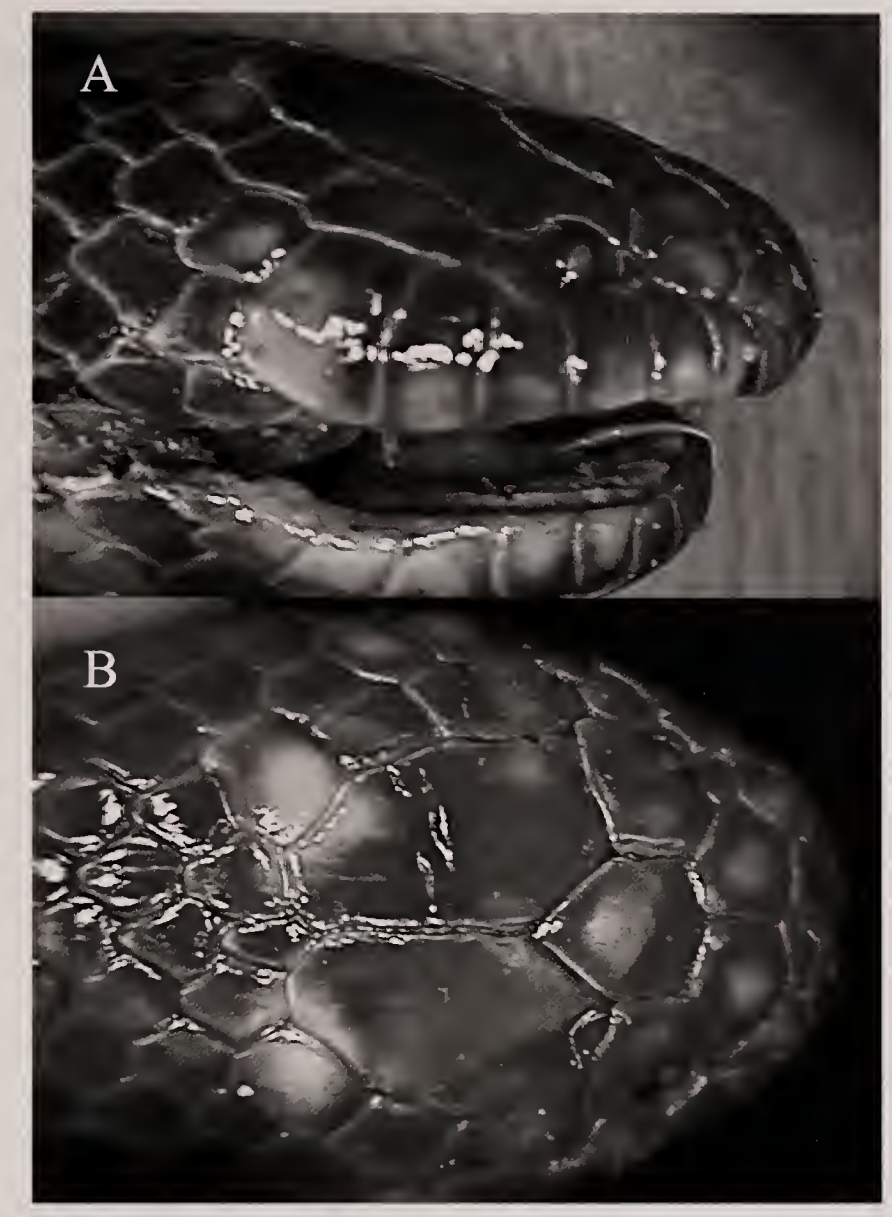


FIG. 49. *Raclitia indica*, BMNH 1946.1.2.36, Malaysia. (**A**) profile, (**B**) crown.

51. *Raclitia indica* Gray

Selangor Mud Snake

Figure 49

Raclitia indica Gray, 1842: 67. Syntypes: BMNH 1946.1.2.36, 1946.1.2.46. Type locality: peninsular Malaysia.
Hypsirhina indica: Boulenger, 1893, 3: 4.
Enhydris indica: Tweedie, 1957: 89.

DIAGNOSIS: Supraocular exceptionally large, plate-like, preocular exceptionally small; supraocular and upper postocular fused; lower postocular extends under eye; nasal cleft contacts first labial; 173–175 very wide ventrals; eye diameter less than width of supraocular; seven upper labials.

NOTE: While Gyi (1970) considered this species closely related to *Miralia alternans*, some of these diagnostic characters in *Raclitia* are quite distinct as is the overall gestalt of the body. Pending evidence to the contrary, we are revalidating Gray's *Raclitia*.

DISTRIBUTION: Selangor, peninsular Malaysia. Also reported from Singapore, but the specimen has not been examined (Murphy, 2007a).

SPECIMENS EXAMINED (n = 2): **PENINSULAR MALAYSIA:** BMNH 1946.1.2.36, 1946.1.2.46.

Homalopsidae Bonaparte, 1845

Subsessor new genus

Hypsirhina Jan, 1865: 258.
Ferania Günther, 1866: 28.

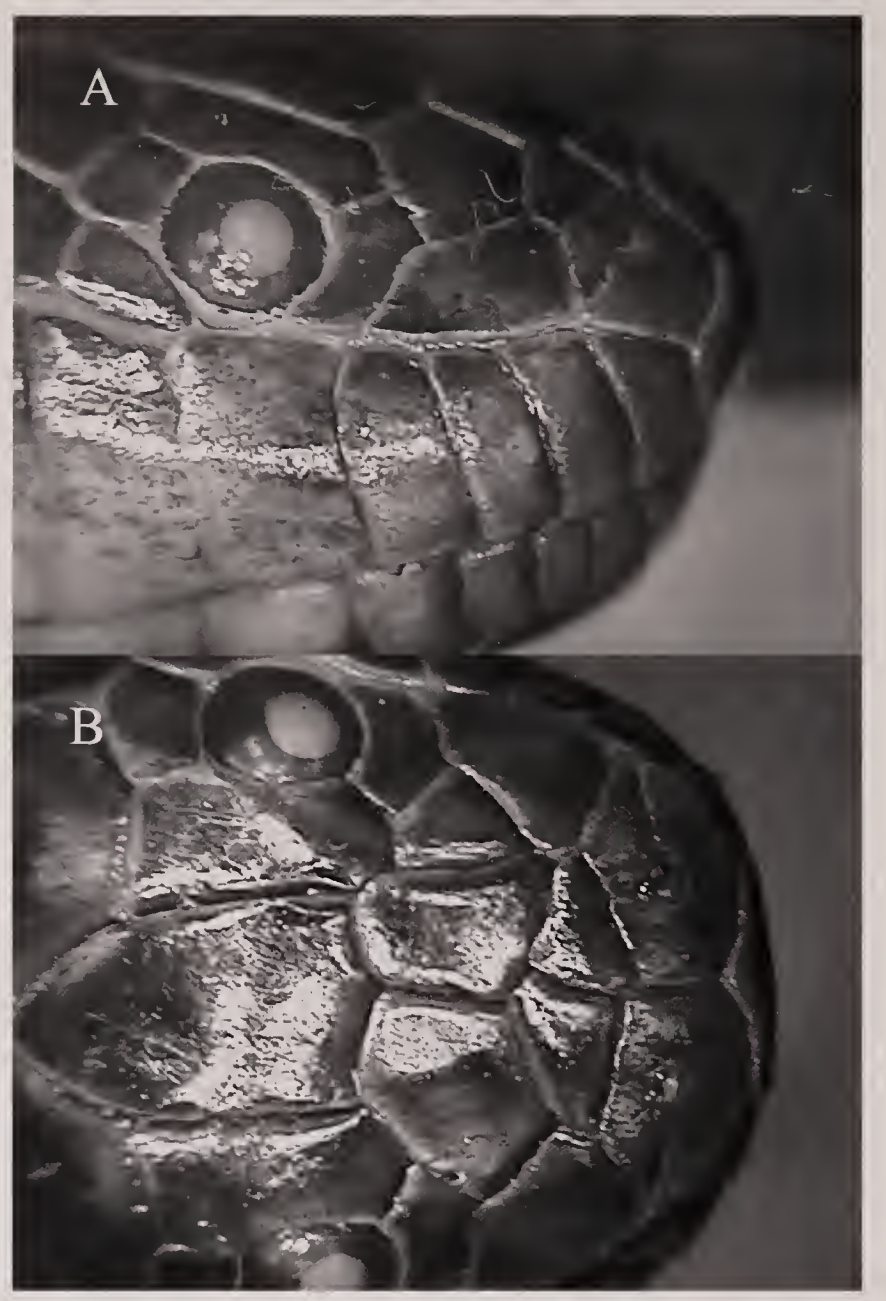


FIG. 50. *Subsessor bocourti*, FMNH 259078, Kien Giang, Vietnam. (**A**) profile, (**B**) crown.

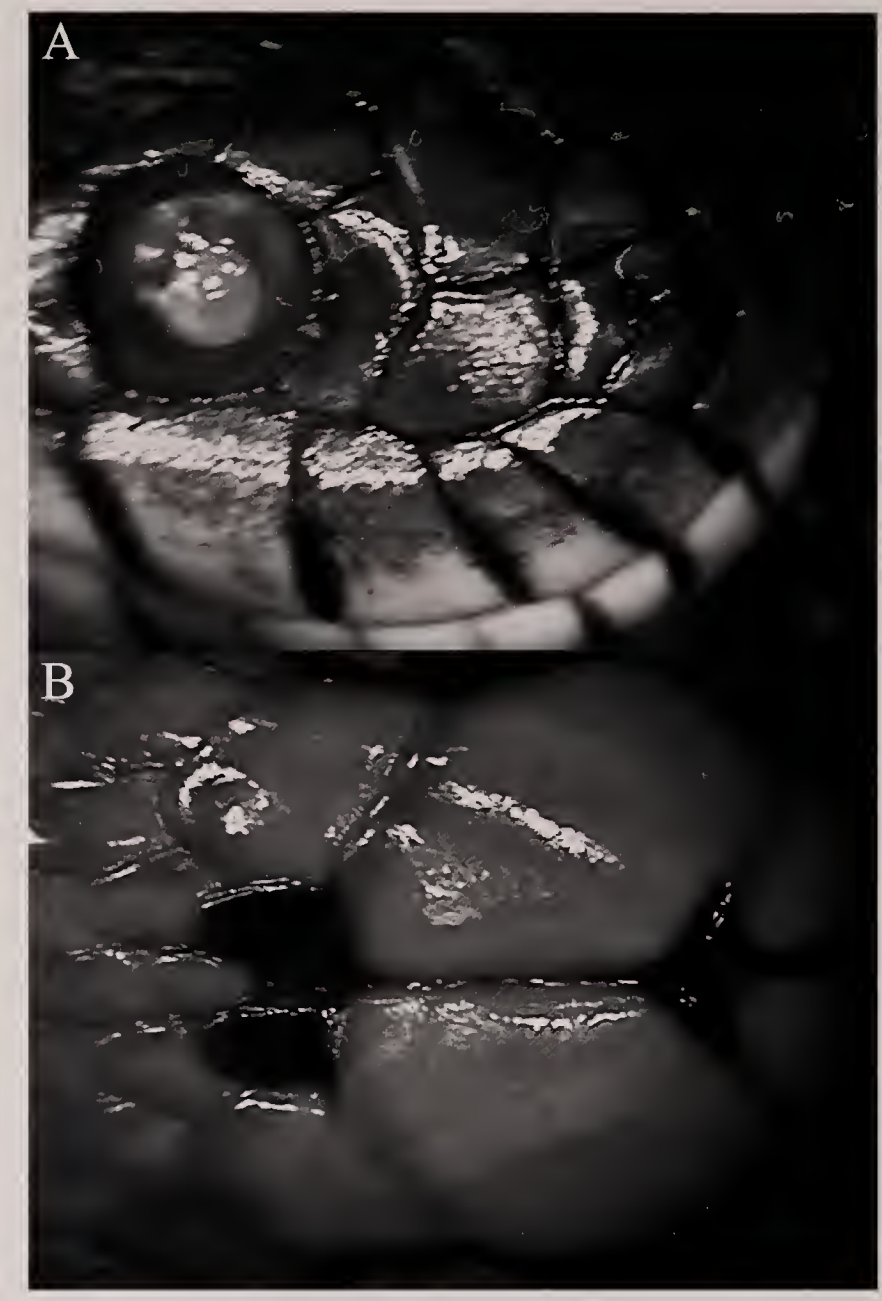


FIG. 51. *Sumatranus albomaculatus*, BMNH 84.18.41, Nias, Pulo, Sumatra, Indonesia. (**A**) profile, (**B**) chin shields.

Hypsirhina Werner, 1923: 163.
Enhydris Smith, 1930: 61.

TYPE SPECIES: *Subsessor bocourti* by monotypy.

DIAGNOSIS: Massive, stout body exceeds 1 m in length; dorsal scales in 27–29 rows; ventrals fewer than 136; chin shields petal-shaped, some upper labials behind the eye horizontally divided.

COMMENT: Alfaro et al. (2008) found strong support for *S. bocourti* as the sister to *Erpeton*, noting that both are ambush predators and share an Indochinese peninsula distribution.

DISTRIBUTION: Endemic to the lower Indochinese peninsula (Murphy, 2007a).

ETYMOLOGY: Named after the sit-and-wait hunting strategy used by this snake. The gender is masculine.

52. *Subsessor bocourti* (Jan)

Bocourt's Mud Snake

Figure 50

Hypsirhina bocourti Jan, 1865: 258. Syntypes: MNHN 613–613A. Type locality: Bangkok, Thailand.
Ferania sieboldi (non-Schlegel) Günther, 1866: 28.
Hypsirhina gigantea Werner, 1923: 163. Holotype: unknown. Type locality: unknown.
Enhydris bocourti: Smith, 1930: 61.
Hypsirhina bocourti soctrangensis Bourret, 1936, 1: 291. Holotype: MNHN 38144. Type locality: Soc Trang, Vietnam.

DIAGNOSIS: Massive body, females much larger than males; dorsal scales in 27 rows at mid-body; ventrals fewer than 136; subcaudals 32–37 in females, 41–47 in males; upper labials under orbit 4 or 4–5; two pairs of chin shields; 8–9 upper labials; 11–14 lower labials; tail short, about 13% of SVL. Hemipenis extends to 14th subcaudal.

DISTRIBUTION: Southern Thailand, peninsular Malaysia, Cambodia, Vietnam. It may have been introduced into southern China, where it is captive raised (Murphy, 2007a).

SPECIMENS EXAMINED (n = 45): **CAMBODIA:** Kampong Chhnang Province, FMNH 259282–289; Prey Veng Province, FMNH 259286; Siem Reap Province, FMNH 259287–289, 259325, 259341–43; 257251–3; **MALAYSIA:** Kedah, ZRC 2–3309–11; **THAILAND:** Pattani, FMNH 191112–13; no specific locality, AMNH 36278; FMNH 252500–02; LSUMZ 34221 (skin only); MCZ 16645; **VIETNAM:** Kien Giang, FMNH 259077–78; FMNH 11549–50; MCZ 5969. No specific data: CAS 7296; USNM 2252, 20410–11, 22881, 22883–5, 23059, 2305962.

Homalopsidae Bonaparte, 1845

Sumatranus new genus

Homalopsis Duméril, Bibron, and Duméril, 1854, 7: 974.
Hypsirhina Jan, 1863: 77.
Enhydris Haas, 1950: 575.

TYPE SPECIES: *Homalopsis albomaculatus* Duméril, Bibron, and Duméril.

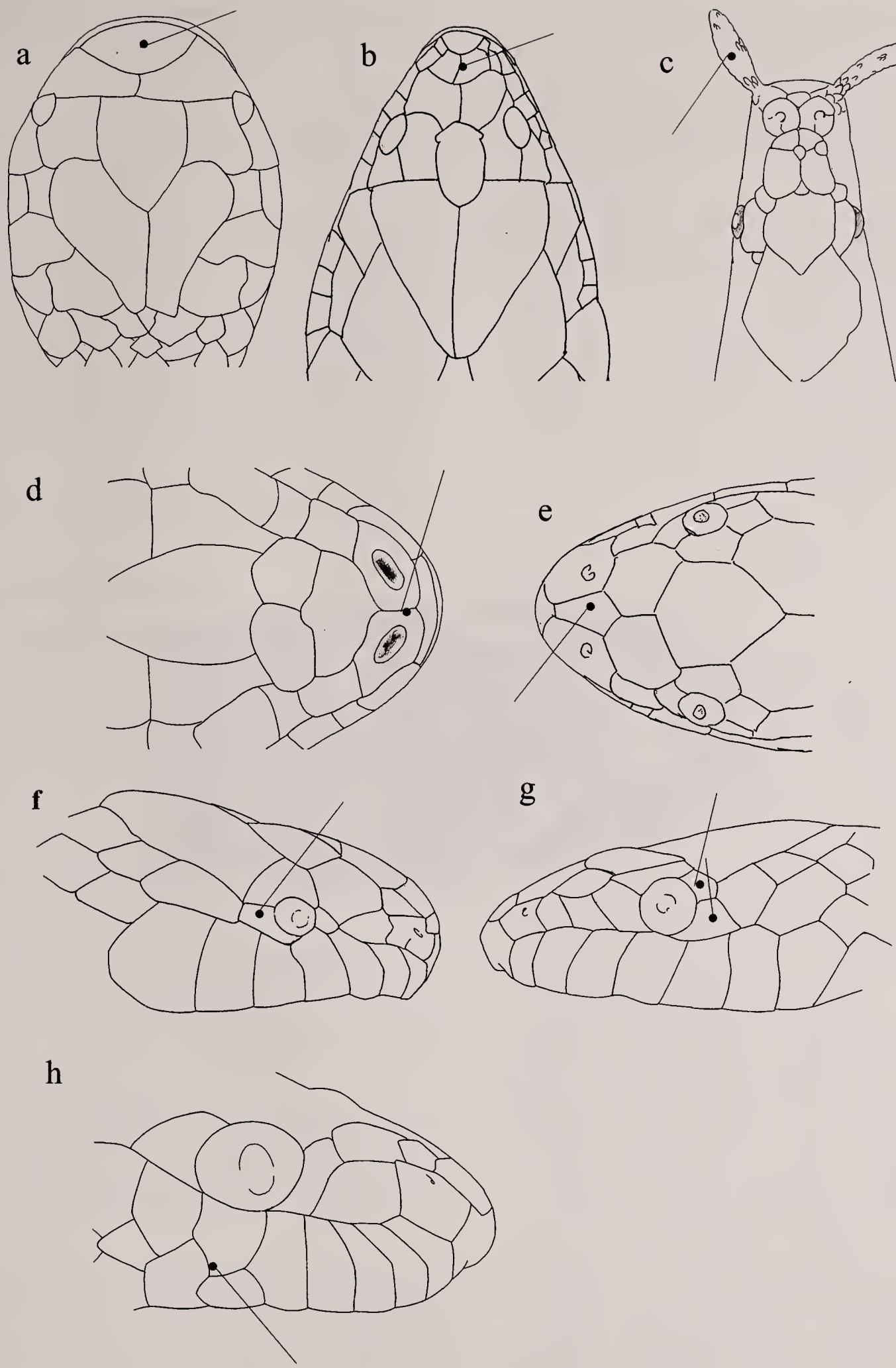


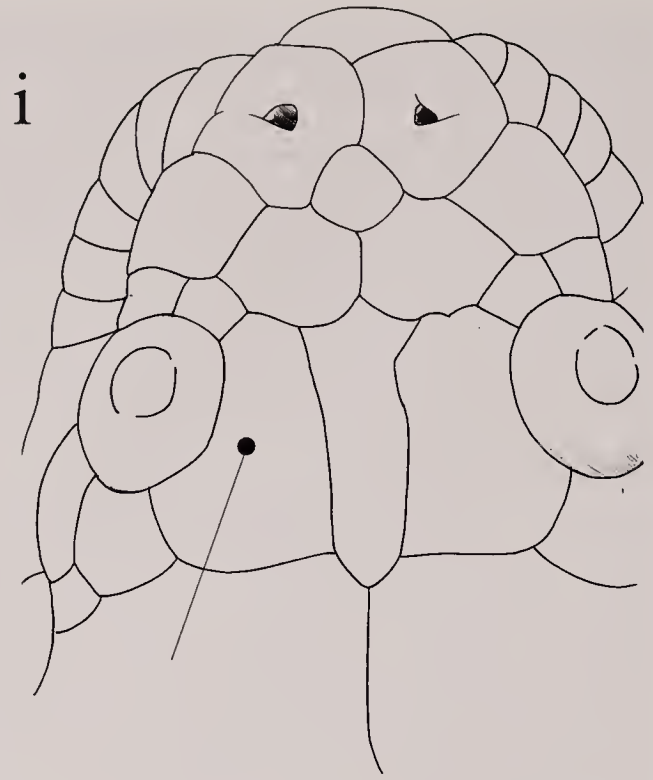
FIG. 52. Key Plate 1. **(a)** a single internasal, dorsal view; **(b)** divided internasal, dorsal view; **(c)** tentacle, dorsal view; **(d)** nasals in contact dorsal view; **(e)** nasals separated, dorsal view; **(f)** one postocular lateral view; **(g)** two postoculars lateral view; **(h)** upper labials under eye divided horizontally.

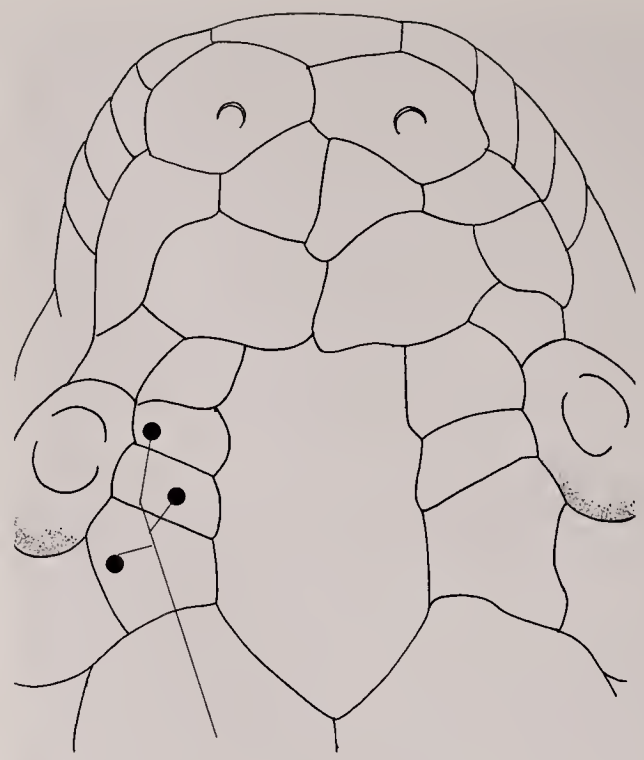
CONTENT: One species.

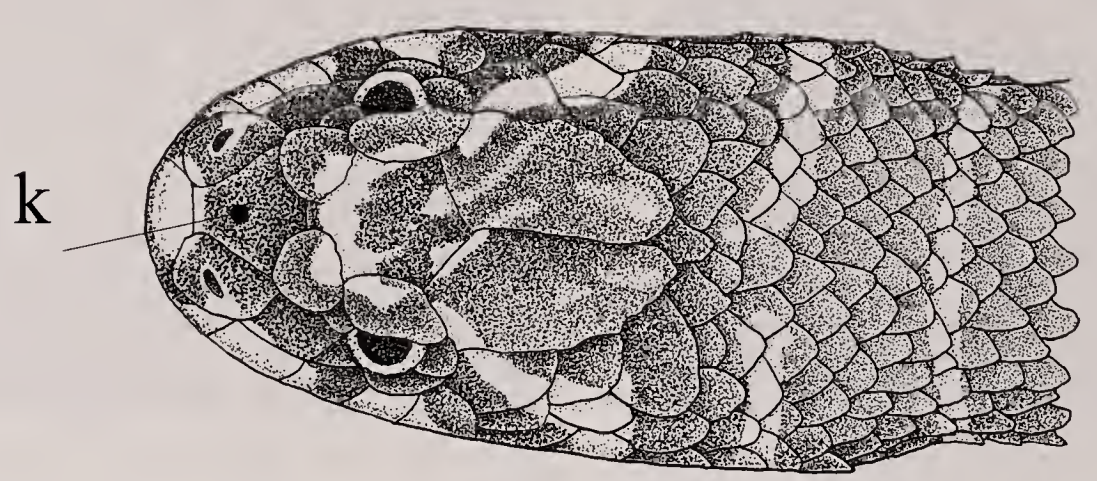
DISTRIBUTION: Northwest Sumatra and its satellite islands (Murphy, 2007a).

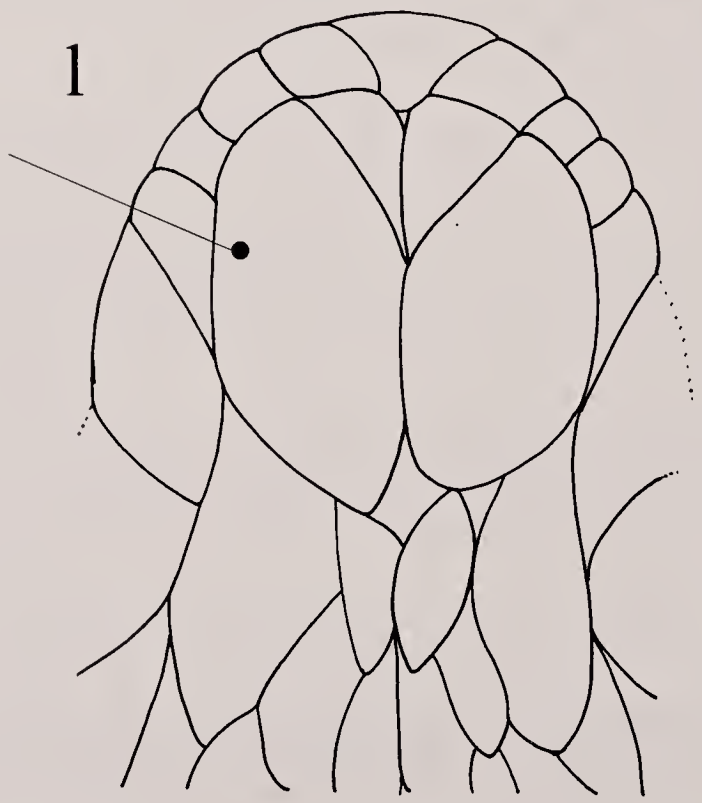
DIAGNOSIS: Smooth scales in 27 (or possibly 25) rows; nasals in contact; last two or three upper labials horizontally divided; large internasal makes narrow contact with elongated loreal; five of six lower labials contact anterior chin shields.

ETYMOLOGY: Name derived from the geographic distribution of the snake. Genus is feminine.









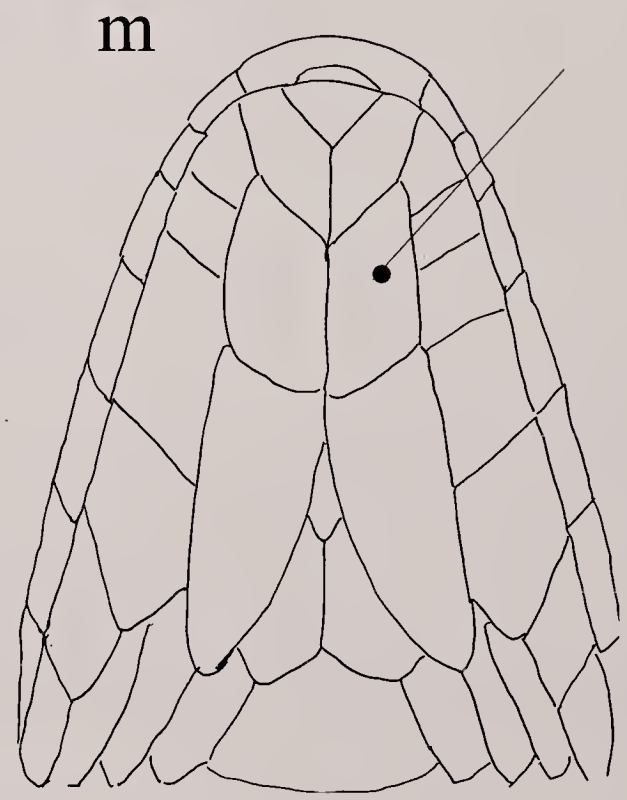


FIG. 53. Key Plate II. **(i)** single supraocular dorsal view; **(j)** divided supraocular dorsal view; **(k)** single internasal separating prefrontals and contacting the frontal, dorsal view; **(l)** anterior chin shields slightly flared or petal shaped and longer than posterior pair, ventral view; **(m)** anterior chin shields elongate and shorter than posterior pair, ventral view.

53. *Sumatranus albomaculatus* Duméril, Bibron, and Duméril

Sumatran Mud Snake

Figure 51

Homalopsis albomaculatus Duméril, Bibron, and Duméril, 1854, 7: 974. Holotype: MNHN c3452. Type locality: Padang, Sumatra.
Hypsirhina albomaculata: Jan, 1863: 77.
Enhydris albomaculata: Haas, 1950: 575.

DISTRIBUTION: Sumatra satellite islands of Nias, Pulo, Simeuluë, Sibigo, and Sinabang; and probably Sumatra proper (Murphy, 2007a).

DIAGNOSIS: Reaches at least 0.7 m in total length, smooth scales in 27 rows; nasals in contact; three or four upper labials at loreal; first upper labial may be isolated from loreal or in very narrow contact; large internasal makes narrow contact with elongated loreal; five or six lower labials contact petal-like anterior chin shields, dorsum with scattered spots, venter mottled.

SPECIMENS EXAMINED (n = 20): **INDONESIA:** Sumatra: Nias, BMNH 84.12.31.5–6, 84.18.41; USNM 30765–69, 35777–83. No data: SMF 19465–69.

Taxonomic Keys for the Homalopsidae

Letters in parentheses refer to drawings in Figures 52, 53.

Fangless Homalopsids

All have the nasal scales separated from rostral, 19 mid-body scale rows, first labial does not contact the loreal, upper labials seven or fewer, 2–3 contact loreal, and the tail length 15% or less of SVL.

1 Internasal single (a), nasal undivided, 19 scale rows at mid-body, reduced to 17 posteriorly . . . . . *Calamophis* Key A
1′ Internasal divided (b), 19 scale rows at mid-body, not reduced posteriorly 2
2 Eye diameter greater than eye–mouth distance, no premaxillary bone . . . . . *Karnsophis siantaris*
2′ Eye diameter less than eye–mouth distance, premaxillary bone present . . . . . *Brachyorrhos* Key B

Rear-fanged Homalopsids

Nasal scales not separated by the rostral, some have the nasal scales separated by the internasal. Open-grooved fangs on rear of maxillary bone. In some species, such as *Erpeton tentaculatus*, the rear fangs are not much larger than the other maxillary teeth.

1 Rostral appendages (c). Ventral scales only slightly larger than dorsal scales. . . . . *Erpeton tentaculatus*
1′ No rostral appendages. Most ventral scales wider than dorsal scales 2
2 Nasals in contact (d) 3
2′ Nasals not in contact (e) 4
3 Smooth dorsal scales (no keels). 5
3′ Dorsal scales mostly keeled. 21
4 All dorsal scales smooth (no keels) 18
4′ Scales in at least some dorsal rows keeled 23
5 First upper labial does not contact loreal, scales in 19–21 rows at mid-body, uniform dorsal pattern (no stripes or large blotches) . . . . . *Hypsiscopus* Key C
5′ Not as above. 6
6 Dorsal scales in 19 rows at mid-body, first upper labial not in contact with loreal, dorsal pattern of transverse bands 7
6′ Dorsal scales in 21 rows or more 8
7 One postocular scale (f), seven upper labials . . . *Raclitia indica*
7′ Two postocular scales (g), eight upper labials. . . *Miralia alternans*
8 Scales smooth, 21 or 23 scale rows, internasal usually contacts loreal 9
8′ Scales smooth in more than 23 rows 10
9 Stripe on dorsal scale rows 2–3 only, internasal usually does not contact loreal, if so the contact is very narrow, ventral scales have a dark pigmented anterior margin. . . . . *Myrrophis* Key D
9′ Pattern contains stripes, spots, and/or blotches, internasal usually makes broad contact with the loreal. . . . *Enhydris* Key E
10 Dorsal scales in 25 rows at mid-body, none of upper labials are horizontally divided 11
10′ Dorsal scales usually in more than 25 rows at mid-body, upper labials may be horizontally divided or not; if 25 rows are present then upper labials under the eye and back are divided (h). 12
11 First upper labial not in contact with loreal, scales in first three rows lanceolate . . . . . *Kualatahan pahangensis*
11′ First upper labial in contact with loreal, scales in first three rows ovate . . . . . *Gyiophis* Key F
12 Upper labials not horizontally divided, ventral scales on anterior body exceptionally narrow compared to posterior ventrals, chin shields small, barely distinguishable from gulars, 29 rows of scales at mid-body. . . . . *Mintonophis pakistanicus*
12′ Some upper labials horizontally divided (h) 13
13 Upper labials number 7–9 14
13′ Upper labials 11 or more 17
14 Three lower labials contact chin shield, ventral mottled, rostral as broad as tall . . . . . *Ferania sieboldii*
14′ Four or five lower labials contact the first chin shields15
15 First upper labial not in contact with loreal, ventral pattern mottled . . . . . *Sunatranus albomaculatus*
15′ First upper labial contacts loreal. 16
16 Lower labials 1–4 contact chin shield, dorsum dark brown, with lateral longitudinal stripes. . . *Dieurostus dussumierii*
16′ Lower labials 1–5 contact chin shield, dorsum has transverse bands that extend on to the venter . . . . *Subsessor bocourti*
17 Supraocular scale single (i), the first four or five upper labials contact the loreal, scale rows at mid-body 25–27. . . . . *Phytolopsis punctata*
17′ Supraocular scale divided (j) into three or four segments, two pairs of lower labials form the mental groove. . . . . *Homalophis* Key G
18 Scales in 17 rows at mid-body, reduced to 13 to 15 posteriorly, loreal in contact with first three upper labials, tail less than 17% of SVL. . . . . *Gerarda prevostiana*
18′ Scales in more than 17 rows 19
19 Scales in 19 rows reduced to 17 rows posteriorly, more than 220 ventrals . . . . . *Cantoria violacea*
19′ Scales in more than 19 rows 20
20 Scales in 23–27 rows (usually 25), loreal usually absent. . . . . *Fordonia leucobalia*
20′ Scales in 37 to 43 rows, dorsal scales with spaces of exposed skin between them. . . . . *Bitia hydroides*
21 Parietal scales fragmented, scales in 29 rows or fewer at mid-body . . . . . *Cerberus* Key H
21′ Parietal scales entire. 22

22 Heavily keeled scales in 28 or more rows at mid-body. . . . . *Homalopsis* Key I
22′ Dorsal scales mostly smooth except on posterior body, scale rows in 23–27 rows . . . . . *.Pseudoferania polylepis*
23 Internasal separates nasals and prefrontals (k) . . . . . *Djokoiskandarus annulatus*
23′ Internasals separate nasals but not prefrontals 24
24 Scales on posterior body keeled, scales in 19 to 21 rows and mid-body, reduced to 17 or 19 posteriorly, first labial does not contact loreal. . . . . *Myron* Key J
24′ Scales in 27 rows, rear upper labials may be horizontally divided . . . . . *Heurnia ventromaculata*

Key A. *Calamophis*

1 Tail exceptionally short (<4% of SVL), 8 to 10 subcaudals 2
1′ Tail about 9–12% of SVL, 17 or more subcaudals . . . 3
2 Eight lower labials, brown marking on the crown (Yapen Island) . . . . . *C. jobiensis*
2′ Seven lower labials, crown of head uniform in color (Andia area of West Papua).. . . . . *C. katesandersae*
3 Dark spot in each dorsal scale, ventrolateral stripe present, tail about 12% of SVL. . . . . *.C. ruuddelangi*
3′ Dorsal scales uniform, no ventrolateral stripe, tail about 9% of SVL . . . . . *C. sharonbrooksae*

Key B. *Brachyorrhos*

1 Preocular usually present, tallest upper labial sixth, males 159–173 ventrals, females 171–178 ventrals, mostly uniform brown above, cream or yellowish below (Seram, Ambon, ?Palau Bisa) . . . . . *B. albus*
1′ No preocular, tallest upper labial third or fifth. 2
2 Upper labials 3+4 in orbit; tallest upper labial fifth; mid-ventral stripe present, usually less than 75% of the width of ventrals (faded in preserved material), a light colored band crosses the back of the head in neonates and juveniles, (Buru) males 177–193 ventrals, females 187–195 ventrals . . . . . *B. gastrotaenius*
2′ Six or seven upper labials, of which 3 or 6 (rarely 5) tallest 3
3 Tallest upper labial is the third and it enters the orbit, uniform brown gray above, light cream below; 168–177 ventrals in males, 176–182 ventrals in females, (Ternate) fourth (or 3+4) upper labial in orbit . . . . . *.B. raffrayi*
3′ Tallest upper labial is sixth (rarely fifth); four upper labials enter the orbit (rarely 3), uniform dark gray, almost black above, light colored venter; 177–182 ventrals in females (Halmahera) . . . . . *B. wallacei*

Key C. *Hypsiscopus*

1 Scales in 19 rows at mid-body. . . . . *H. plumbea*
1′ Scales in 21 rows at mid-body. . . . . *H. matannensis*

Key D. *Myrrophis*

1 Dorsal scales in 23 rows, reduced to 19 posteriorly . . . . . *M. chinensis*
1′ Dorsal scales in 21 rows, reduced to 17 posteriorly . . . . . *M. bennettii*

Key E. *Enhydris*

1 First pair of chin shields elongate, not petal-shaped, scales smooth with fine striations visible with magnification 2
1′ First pair of chin shields petal-shaped (l) as opposed to elongate (m), scales smooth but lack fine striations when viewed with magnification 3
2 Scale rows at mid-body 21 (rarely 23), anterior chin shields shorter than posterior pair, lateral stripe (red in life) on scale rows 1–2–3, more than 153 ventral scales, lateral spots absent . . . . . *E. enhydris*
2′ Scale rows at mid-body 21, in life broad dark vertebral stripe, with lateral spots above scale row four, first pair of chin shields longer than second pair, ventrals 153 or fewer . . . . . *E. subtaeniata*
3 Scale rows on neck usually 21 (rarely 23), temporal scales distinct and plate-like, outer edge of each ventral involves a zigzag stripe, scale rows 3–4 have a stripe, scale rows 5–6 or 5–7 have dark spots involving three or four scales, ventral scales 110–125, no large scalloped lateral blotches, vicinity of Bangkok, Thailand. . . . . *E. chanardi*
3′ Scale rows on neck 23–25, large scalloped blotches arise from the venter 4
4 Temporal scales are not large, but distinguishable from occipital scales, ventral scales 108–117, subcaudal scales number 49–56 in males, 42–49 in females. Southern portion of Mekong River . . . . . *E. innominata*
4′ Ventral scales number 117 or more 5
5 Ventrals 117–127, females have more than 50 subcaudals, males have about 68, vicinity of Bangkok, Thailand . . . . . *E. jagorii*
5′ Ventral scales number 124–135, males have 64–73 subcaudal scales, females have 53–76, dorsum and ventral may be uniform black with a yellow spot on each ventral, or have lateral scalloped blotches interrupted with yellow, eye diameter is equal to nasal diameter, vicinity of Tonlé Sap, Cambodia . . . . . *E. longicauda*

Key F. *Gyiophis*

1 Ventrals 123, no stripe on scale rows 2–3, tail about 12% of SVL, rostral as broad as tall. . . . . *G. maculosa*
1′ Ventrals 142–152, stripe on scale rows 2–3, tail more than 16% of SVL, rostral twice as broad as tall . . . . *G. vorisi*

Key G. *Homalophis*

1 Dorsal scales in 29–33 rows, 132–152 ventrals, first divided upper labials under orbit. . . . . *H. doriae*
1′ Dorsal scales in 25–27 rows, more than 153 ventrals, first divided upper labial anterior to orbit. . . . . *H. gyii*

Key H. *Cerberus*

1 27–31 (usually 29) scale rows at mid-body . . . *C. microlepis*
1′ Fewer than 28 scale rows at mid-body. 2
2 Upper labials 2–3 or 2–4 contact the loreal, 21–25 (usually 23) scale rows at mid-body, no keeled scales on crown anterior to level of angle of the jaw . . . . . *.C. australis*
2′ Upper labials 1–3 or 1–4 contact the loreal, 23–27 scale rows at mid-body, keeled scales on crown anterior to angle of jaw 3

3 The last two large upper labials are horizontally divided, usually 25 rows of dorsal scales at mid-body. . . *C. rynchops*
3′ Only the last large upper labial is horizontally divided, usually 23 rows of dorsal scales. 4
4 Scales on crown juxtaposed and rounded; large, plate-like fragments of parietal scales present; light stripe on scale rows 1–2; few or no keels on crown scales anterior to level of angle of jaw; ventral scales uniform black. . .*C. dunsoni*
4′ Scales on crown slightly imbricate, not rounded, no plate-like parietal scales, light stripe on scale rows 1–3, keels on crown scales anterior to level of angle of jaw, ventral scales mottled or pale in color. . . . . .*C. schneiderii*

Key I. *Homalopsis*

1 Three prefrontal scales, a divided or fragmented loreal, 39–44 dorsal scale rows at mid-body . . . . *H. semizonata*
1′ Two prefrontal scales. 2
2 Dorsal scales at mid-body 40–49 . . . . . *H. mereljcoxi*
2′ Dorsal scales at mid-body 33–39. 3
3 Venter dark olive or gray with paired pale spots. . . . . *H. nigroventralis*
3′ Ventral pattern mostly uniform yellow or cream with paired dark blotches. 4
4 Loreal single, presubocular present . . . . . *H. buccata*
4′ Loreal divided, no presubocular scale . . . *H. hardwickii*

Key J. *Myron*

1 Scale rows at mid-body 19, largest lower labial 5, blotches in dorsal pattern . . . . . *M. resetari*
1′ Scales at mid-body in 21 rows. 2
2 One preocular scale, dorsal pattern black with narrow transverse bands . . . . . *M. karnsi*
2′ Two preocular scales, dorsal pattern of blotches, nasal scale semi-divided . . . . . *M. richardsonii*

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